

Sir K. S. Krishnan, F.R.S.

ON December 3, 1958, Sir K. S. Krishnan celebrated his sixtieth birthday, and to commemorate this event the contents of the December issue of the *Journal of Scientific and Industrial Research* included two special features. The first is a reprint of the article describing Prof. Krishnan's distinguished scientific career which Prof. K. R. Ramanathan contributed to the Souvenir Volume published by Prof. Krishnan's Sixtieth Birthday Celebrations Committee, New Delhi. The second consists of a 110-page supplement containing reports of the work carried out under the auspices of the Indian National Committee for the International Geophysical Year, 1957-58, of which Prof. Krishnan was the chairman and active director. A brief foreword to the supplement is followed by two short articles entitled "Sir K. S. Krishnan and the International Geophysical Year" and "Space Exploration—An Achievement of the I.G.Y.", by Profs. Sydney Chapman and L. V. Berkner, respectively, and sections devoted to meteorology, geomagnetism, ionosphere, solar activity, cosmic rays, latitudes and longitudes, glaciology, oceanography, rockets and satellites, and seismology, containing twenty-four reports in all. India took part in every one of the fourteen divisions of the international programme and maintained, in addition to a large network of meteorological stations, about sixty other observation stations distributed all over the country. India's geographical position and the vast area of the country render its particular contributions to the International Geophysical Year programme of special significance, and the detailed results given in the reports are a valuable addition to geophysical data and a stimulus to the conquest of space.

#### The Microbiological Research Establishment

IN reply to a question regarding the work of the Microbiological Research Establishment in the House of Commons on May 4, the Minister of Supply, Mr. A. Jones, said that the work of the Establishment is of much wider interest than its aspects relating to the defence programme and involves fundamental studies in microbiology which have applications in preventive medicine. Mr. Jones instanced the development and production of a completely safe vaccine against anthrax and the production of raw material for Asian influenza virus vaccine used in the 1957-58 epidemic. During 1958 more than 80 articles were published by members of the staff in medical and scientific periodicals, and biological materials were regularly provided for use in microbiological departments engaged in medical research at universities and other institutions. In reply to a further question, the Minister said that it is the Establishment's function to study the problem of biological warfare and much progress has been made. It is not now thought that botulinus toxin would be an effective agent, and efficient protective measures have also been developed. Our ability to assess and encounter the threat has increased with the growth of our knowledge of the subject from research, but much still remains to be done.

#### Mathematics in American Secondary Schools

"AN Emerging Programme of Secondary School Mathematics", the Inglis Lecture for 1958 (pp. viii+44. Cambridge, Mass.: Harvard University Press; London: Oxford University Press, 1959. 7s. 6d. net), is an account, given by Prof. Max Beberman,

of a diagnostic experiment in teaching method which has been in operation since 1952 under the auspices of the University of Illinois. The investigation is designed to establish whether mathematicians can formulate a course of instruction for pupils, and a programme of training for teachers, so that the subject may have a greater appeal to the average child. The lecture postulates two fundamental principles for a course now being applied to the last four years (age range about 13-17) in twelve American high schools. The first principle, the need for precision in language, is exemplified here by the ability to appreciate the difference between the figure '3', the name 'three' which we apply to this figure, and the 'number' three which is the *class* of sets of three things. The second is the necessity for discovery as an aid in understanding the nature of mathematics; examples relate to directed numbers, the solution of equations and inequations ( $|2x + 1| < 7$ ), the manipulation of algebraic expressions and the 'ordered pair' approach to analytical geometry. In this account there is insufficient detail to give the reader a convincing understanding of the effectiveness of this actual programme. Enough is said, however, to establish beyond doubt that only by such experiments in training and teaching under pilot conditions can the content of the syllabus in school mathematics be settled with any real certainty.

#### Language, Literature and Science

PROF. A. NORMAN JEFFARES's inaugural lecture in the chair of English at the University of Leeds has been published by the University (pp. i+24. Leeds: The University Press, 1959. 2s. 6d.). It is a matter for satisfaction and congratulation that Prof. Jeffares has made a plea for the presentation of the best scientific writing as literature. On one hand, the scientist should consider the clearest and most cogent method of presenting his knowledge to those who are not workers in scientific fields; and on the other, the arts student must endeavour to understand the significance of the aims and methods of, and the changes in the world wrought by, science. "Humanism must include science: a refusal on the part of the man trained in arts to launch himself into the sea of scientific thought is as dangerous for us as any obfuscation of that thought on the part of a scientist untrained in the technique of using his own language—'Science is or ought to be poetry and poetry is knowledge, and the humanity of the future will not divide life but unite it'. But the humanism of the future depends upon our reading of the literature of both humanism and science, upon our listening to those who conserve, add to or modify both these traditions of humanism and science, and upon our own writing and speaking good English, the existence of which is the common bond between humanism and science."

#### International Federation of Societies of Cosmetic Chemists

A MEETING took place in the rooms of the Chemical Society, Burlington House, Piccadilly, London, on April 15, when representatives of eight countries met to discuss the formation of an International Federation of Societies of Cosmetic Chemists. This Federation would link together the various autonomous national societies into an international body, capable of acting in such fields as international standards, establishment of the professional status of the cosmetic scientist, publication of bulletins, abstracts and