

including the Ministries of Health of England, Scotland, and Northern Ireland, the Ministry of Agriculture, H.M. Office of Works, the Home Office, War Office, Board of Control, and the Air Ministry. Many foreign governments, and municipal authorities, learned societies, and universities throughout the United Kingdom will also be represented. In connexion with the celebrations a handbook has been prepared recording the history and activities of the Institute, together with special articles dealing with sanitary progress during the fifty years 1876-1926, from the medical, engineering, architectural, parliamentary, legal, public administration, colonial, military, and naval aspects.

THE American Chemical Society, which was founded in 1876, celebrates its fiftieth anniversary in Philadelphia, Pennsylvania, U.S.A., on September 6-11 next. It is anticipated that some 3500 chemists from all parts of the world will be present. The Society will meet in eighteen divisional gatherings, dealing with various branches of pure and applied chemistry. Many of the divisions will hold special symposia of papers and addresses of importance from authorities in their respective fields. In addition, there will be two general meetings of the whole Society. No direct invitations or requests for the appointment of special delegates are being sent out; all non-American chemists are invited to attend and take part in the meeting on the same basis and under the same con-

ditions as members of the Society. Foreign chemists expecting to attend the meeting should, if possible, communicate with Charles L. Parsons, Secretary, Mills Building, Washington, D.C., U.S.A.

THE latest catalogue of Messrs. Heffer and Sons, Ltd., Cambridge, (No. 269) is devoted to second-hand books on physiology, anatomy, medicine, zoology, biology, anthropology, and ethnology. Many of the works listed are from the libraries of the late Sir William Bayliss and Sir Francis Darwin. The publishers offer the catalogue free upon application.

MESSRS. Watts and Co. are about to reissue, in two volumes, Herbert Spencer's "Autobiography," which for some time has been out-of-print. They have also begun a new cheap series of volumes entitled "The Forum." Among future works will be "The Origin of Life," by Sir Edward Sharpey Schafer, and "The Goodness of Gods," by Dr. E. A. Westermarck.

MESSRS. Bernard Quaritch, Ltd., 11 Grafton Street, W.1, have just issued another useful catalogue—No. 400—dealing with some 2000 second-hand works on botany, agriculture, early medicine and surgery, forestry, fruit-culture, gardens and gardening, herbals, modern medicine, and tobacco. It should certainly be seen by all readers interested in these branches of knowledge.

Our Astronomical Column.

THE ATMOSPHERE OF MARS.—In August 1924 Mr. Wright obtained at the Lick Observatory photographs of Mars in ultra-violet, yellow and red light. The former showed a larger image than the others, but gave scarcely any detail on the planet's surface. B. Fessenkoff, of the Moscow Astrophysical Institution, makes some calculations on the subject in *Astr. Nachr.* No. 5450. He concludes that the observed facts are best satisfied by supposing that the upper layers of the planet's atmosphere contain fine dust which is nearly opaque to ultra-violet light, but transparent to red and yellow light. As to the possibility of fine dust at great heights, reference may be made to the Krakatao eruption of 1883. The dust remained suspended in the upper air for more than a year, causing remarkable sunsets all over the world.

THE POLAR COMPRESSION OF URANUS.—An article by C. Wirtz in *Astr. Nach.* No. 5441 gives a new estimate of the oblateness of Uranus by comparison of its brightness at the Uranian equinoxes and solstices. The inclination of the axis is so high that at the solstices, which occurred in 1861 and 1903, the terminator practically coincides with the planet's equator, and the outline appears almost circular; at the equinoxes, which occurred in 1882 and 1924, the poles are on the terminator, the oblateness reaches its maximum and the light a minimum. A discussion of all the available determinations gives the magnitudes as 5.46^m at maximum, 5.67^m at minimum. The light-range is concluded to be between 0.15^m and 0.25^m , from which a compression in the neighbourhood of $\frac{1}{8}$ is deduced. The author concludes that long-continued photometric measures by modern methods would determine the compression more accurately than micrometrical measures of the disc. The range in the values found by the latter method is considerable.

CEPHEID VARIABILITY.—In an article on the δ -Cephei problem, published in the *Atti della Pontificia Accademia delle Scienze (Nuovi Lincei)*, the Rev. J. G. Hagen, S.J., Director of the Vatican Observatory, deprecates the antagonism which has arisen between the two theories which have been advanced to explain the variability of the light emitted by stars of this type. In some papers, especially those in English, the pulsation theory is referred to as the generally accepted theory, while, in a recent publication of the Ottawa Observatory, it is asserted that the ordinary binary theory may almost certainly be definitely ruled out of court. Such statements are scarcely justified in view of the fact that no clear and precise answer has yet been given to the questions: (1) Where does the impulse for the pulsations come from? And, (2) how are the pulsations maintained uniform for centuries? A natural answer is furnished to both of these queries if a δ -Cephei star is regarded as a binary system; the pulsations would then be periodically excited by the approach of the satellite and would last only from one eruption or light maximum to the next. In this way the mathematical theory of pulsations receives the mechanical basis hitherto lacking, and, moreover, the undulations observed in the descending branches of the light curves find their most obvious explanation. On the other hand, no invincible argument against the presence of a satellite has ever been brought forward. So far as analogy with other celestial phenomena is concerned, there is in the entire heavens no well-proven example of periodic changes due solely to the internal forces of a star, especially now that some long-period variables have revealed themselves as binary systems, whilst striking examples of light eruption are provided by comets approaching the sun.