

thus afforded in emphasising the benefits of applied science will be appreciated by readers. Interesting light is shed on two incidents during the war—the Coronel sea-battle and the German advance in 1914—both illustrating the importance of accurate information regarding warfare on land and sea. Among other matters that are the subject of editorial comment may be mentioned “The Science of Sailing,” “The Bases of Politics,” and “The Need for a Scientific Missionary Journal.” Much of the issue is naturally devoted to the annual report of the Guild and the annual meeting. Special interest attaches to the address of Sir Richard Gregory explaining the origin of the appeal to be conducted by Commdr. L. C. Bernacchi for funds to consolidate and extend the Guild’s activities. Among other important steps may be mentioned the establishment of local branches of the Guild and the completion of the catalogue of scientific books, comprising over 6000 entries—in itself a remarkable piece of work that justifies the Guild’s existence. A summary is given of Sir Leslie Mackenzie’s address at the Edinburgh meeting of the British Association on “Science and Citizenship,” and a tribute is paid to the memory of Sir Ernest Shackleton, whose passing away on the *Quest* at the commencement of this year will be fresh in the minds of readers, and whose achievements in the field of polar exploration will not soon be forgotten.

A NEW catalogue (No. 94) of second-hand works on Zoology, Botany, and Agriculture has been

issued by Messrs. Dulau & Co., Ltd., 34 Margaret Street, W.1. Among the 1400 volumes listed are two of especial interest, namely, a nearly complete set of *Curtis’s Botanical Magazine*, formerly the property of Sir Joseph Hooker, with MS. corrections in nomenclature by Sir W. J. and Sir J. D. Hooker, and an unusual French Herbal, entitled “Recueil des plantes les plus usuelles peintes d’après Nature,” in 12 vols. containing nearly 5000 illustrations drawn and coloured by hand, with manuscript descriptions.

MESSRS. W. HEFFER & SONS, Ltd., Cambridge, have just issued a list (No. 213) of some 600 works in new condition which they offer at greatly reduced prices. Many of the books listed deal with scientific subjects. The catalogue is obtainable from the publishers upon request.

A REPORT of the address given by Mr. F. W. Sander-son to the National Union of Scientific Workers, just before his death, is to be published shortly. Copies may be obtained from Maj. A. G. Church, General Secretary, 25 Victoria Street, S.W.1.

THE firm of Mr. T. Fisher Unwin, Ltd., 1 Adelphi Terrace, London, W.C.2, is arranging for the publication of the memoirs of Sir William Crookes, edited by Dr. Fournier d’Albe. Any letters and information likely to be useful to the editor will be gratefully received and carefully preserved and returned.

Our Astronomical Column.

SKJELLERUP’S COMET, 1922 *b*.—This proves to be a short-period comet of the Jupiter comet-family. The following elliptical orbit has been derived from observations on May 20, 31, June 12, the third being by Dr. W. H. Steavenson at Norwood.

$$\left. \begin{aligned} T &= 1922, \text{ May } 15, 0.0325 \text{ G.M.T.} \\ \omega &= 354^\circ 47' 20'' \\ \Omega &= 215^\circ 43' 31'' \\ i &= 17^\circ 23' 36'' \\ \phi &= 43^\circ 9' 00'' \end{aligned} \right\} 1922.0.$$

$\log a = 0.44930.$
 $\log q = 9.94904.$
 Period = 4.7201 years.

These elements indicate a much closer approach to the earth than the parabolic elements did. Prof. Leuschner has pointed out that the comet is probably identical with 1902 II., discovered by Mr. John Grigg in New Zealand, and followed by him for 11 days. No one else saw it, and the observations were too rough to give a good orbit. If the period of less than 5 years is confirmed it will be the second shortest cometary period known, that of Encke, 3.3 years, being the shortest.

SOLAR ATMOSPHERIC CHANGES.—In the current number of the Monthly Notices of the Royal Astronomical Society (April) there are three communications relative to solar activity. The first is by Dr. William J. S. Lockyer, and deals with the relationship between solar prominences and the corona. In 1903 Dr. Lockyer published a paper on the same subject, concluding that the various forms of the corona, as photographed during eclipses, were dependent on the positions and intensities of the zones of

prominence activity. In the present paper, using quite independent prominence and corona data, the former extending over the period 1890–1920 and thus including three sunspot maxima and minima, he points out that the previous conclusion is well endorsed by these new observations. Mr. A. M. Newbegin publishes the results of his solar prominence observations for the year 1921 and gives curves showing mean areas and mean numbers. He shows that the main zones of prominences were situated in latitudes 40° N. and 55° S., and a much lesser zone of activity in latitudes 20° N. and 25° S. These zones are in conformity with the curves of latitudes of prominences illustrated in Dr. Lockyer’s paper referred to above, the higher latitude zones being the commencement of a new zone of activity which will gradually move polewards.

Mr. C. P. Butler communicates a first paper on the systematic distribution of solar calcium flocculi, this contribution dealing with inclination of elongated groups. Several observers have previously shown that the mean inclinations of the axes of sunspot groups were found to vary from 0° to 11° , and that the amount of inclination increases with the solar latitude of the group. Mr. Butler has investigated the case of the areas of calcium flocculi as determined from measures taken from photographs secured with the spectroheliograph. He concludes that the inclinations range in general from 0° to 40° , with a few cases of specially high inclination. The range is therefore much greater than that found for spot-groups. In the above range there are maximum frequencies at certain latitudes, namely, 15° , 21° , and 28° – 32° . Other more detailed results are given.