search about the temple and its large monastery of nearly 4000 priests. He devotes several pages to the sacred tree, which has been identified for him as *Syringa Giraldiana*, K. Schneider. A word of praise is due for the excellent illustrations, many of them from photographs by Frau Filchner, who accompanied her husband in his travels. Altogether the book forms a complete guide to the place, and is admirably produced at such a marvellously cheap price as is only possible on the Continent.   L. A. WADDELL.

A Century's Progress in Astronomy. By Hector Macpherson, jun. Pp. xi+246. (London: W. Blackwood and Sons, 1906.) Price 6s. net.

IN attempting to crowd an account of a century's progress in one of the most progressive of sciences (during the last century) into 238 pages of well-displayed print we fear that Mr. Macpherson has attempted too much in too little space. The volume will certainly be found useful for reference as an astronomical "Who's Who," but we fear that the general reader will have but a hazy idea of the true meaning of the century's progress after perusing it.

The first two chapters, occupying more than one-sixth of the total reading matter, deal with Herschel, the "pioneer" and "discoverer," and are full of interest and information. The subsequent chapters (iii. to ix.) treat of the celestial bodies in the conventional order, and as completely as can be expected in so confined a space, the more important discoveries, *e.g.* those by Schwabe, Janssen, Lockyer, Tacchini, and others concerning the sun, receiving a fair amount of attention.

The concluding chapters (x. to xiv.) deal with the spectroscopic and variable-star work, stellar systems, stellar distribution, and celestial evolution, the various theories and researches in each branch being passed in rapid review.

Speaking generally, Mr. Macpherson's information is up-to-date, and includes most of the events in the century's work, but in some few cases this is not so. For example, we are surprised to find that although the names of some dozen foreign double-star observers are given (p. 201), no English name has been found worthy of inclusion, not even that of Thomas Lewis. Again, we believe that Sir Norman Lockyer's later researches have, by a natural order of progress, advanced his temperature classification beyond the stage where the Sirian stars were thought to illustrate the acme of temperature. A bibliography giving references to the original works so briefly epitomised in this volume would be of great value, but the book contains no references.   W. E. R.

The World's Calendar. Invented by the Rev. J. P. Wiles. (London: G. Philip and Son.) Price 2s. net.

MR. WILES has devised a very ingenious toy which will exhibit the day of the week corresponding to any calendar date and also Easter-day for any year.

We do not think that any better mechanical method could have been constructed, but we are not much in sympathy with contriving any device of the kind. The information given is not often required by most of us, and those who do require it had far better work from a concise tabular statement.

As a Christmas present it would probably give satisfaction. Perhaps Mr. Wiles contemplated this in bringing his calendar out in November. From this point of view it deserves success, and will prompt the curiosity of some to try thoroughly to understand the construction.
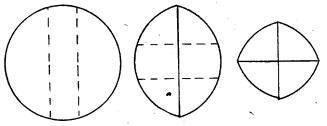

LETTERS TO THE EDITOR.

Cutting a Round Cake on Scientific Principles.

CHRISTMAS suggests cakes, and these the wish on my part to describe a method of cutting them that I have recently devised to my own amusement and satisfaction. The problem to be solved was, "given a round tea-cake of some 5 inches across, and two persons of moderate appetite to eat it, in what way should it be cut so as to leave a minimum of exposed surface to become dry?" The ordinary method of cutting out a wedge is very faulty in this respect. The results to be aimed at are so to cut the cake that the remaining portions shall fit together. Consequently the chords (or the arcs) of the circumferences

Broken straight lines show intended cuts. Ordinary straight lines show the cuts that have been made. The segments are kept in apposition by a common elastic band that encloses the whole. In the above figures about one-third of the area of the original disc is removed by each of the two successive operations.

of these portions must be equal. The direction of the first two vertical planes of section is unimportant; they may be parallel, as in the first figure, or they may enclose a wedge. The cuts shown on the figures represent those made with the intention of letting the cake last for three days, each successive operation having removed about one-third of the area of the original disc. A common india-rubber band embraces the whole and keeps its segments together.   F. G.

Anode Rays.

IN the *Deutsch. Phys. Gesell.* (Verh. 8, 21, pp. 559–566, November 15) there appears a paper by Gehrcke and Reichenheim under the title of "Anode Rays."

By means of a special construction a discharge is sent through a tube in which the anode consists of an inorganic salt placed on platinum foil and heated to a dull red heat by an auxiliary current. The salts used are mostly chlorides. In these circumstances a brilliant bundle of coloured rays is emitted by the anode, but this emission soon ceases. These rays the authors call "anode rays." Their positive charge is demonstrated by shooting them into a Faraday cylinder and by their magnetic deflection. These results appear to me to be attributable to the emission of positive ions by heated salts, which has already been investigated by Mr. Garrett and myself (*Phil. Mag.*, October, 1904). Mr. Garrett has continued the work described there, and finds that most halogen salts behave in a similar manner, and that this positive emission can readily be detected at ordinary temperatures. Both the number and velocity of the ions increase rapidly as the temperature is raised or pressure lowered, and in the paper mentioned we found that the emission ceased when the heating was continued. Allowing for the difference in temperature, Gehrcke and Reichenheim's results and ours appear to be different aspects of the same phenomenon. We are now seeking to determine what exactly the positive ions are, and in this connection the observation is of interest that the anode rays give very sharp lines of the metal involved, when coupled with J. Stark's discovery that the canal rays are the emitters of the hydrogen-line spectrum.   R. S. WILLOWS.

Cass Institute, E.C., December 17.