

a course as B. O. Peirce and W. E. Byerly used to give at Harvard on harmonic analysis and potential function.

E. B. WILSON.

*Annuaire pour l'An 1914 publié par le Bureau des Longitudes.*

Paris, Gauthier-Villars. vii+502 pp., with four appendices.

THE most interesting article in the current *Annuaire* is one on the measurement of the day. In this M. G. Bigourdan has given a brief but sufficient summary of its early history and has carried it up to the present time, when the system of hour zones is fairly well established throughout the world. An interesting part of the story is his description of the efforts made in France to introduce the Greenwich meridian for the measurement of civil time and its final accomplishment in 1911. Two brief articles, one on the deformation of the images in telescopes by M. Hatt and the other on the seventeenth international geodetic congress by M. B. Baillaud, complete the "Notices."

Several revisions have been made in the astronomical portions, tending to bring the constants and descriptions up to date. But the mass of information contained in a small compass is too great for special mention here. The volume may perhaps be classified as the most complete travellers' guide to the physical universe which has hitherto been issued. There is even a slight tendency towards the inclusion of biological subjects in the tables of analyses of beers, wines, cereals, and the ashes of plants.

E. W. BROWN.

*Les Actions à Distance.* Par G. COMBEBIAC. *Scientia* No. 30. Paris, Gauthier-Villars, 1910. 89 pp.

IN this issue of *Scientia*, M. Combebiac brings together the physical foundations of some of the hypotheses which have been advanced to explain action at a distance. In all of them, a fluid is postulated: the different ways in which motions may be set up in this fluid practically constitute the developments given in the volume.

The formulas of vectors and spherical harmonics are briefly set forth—too briefly we fear for anyone not familiar with them and their uses. Two chapters are respectively devoted to the pulsating spheres of Bjerknes and the oscillating spheres of Korn with special reference to the gravitational hypotheses