The Reliquary and Illustrated Archaeologist. Edited by Rev. Dr. J. Charles Cox. New series, Vol. xiv. Pp. 302. (London: Bemrose and Sons, Ltd., 1908.) Price 12*s.* net.

THE quarterly numbers of this review are often noticed separately in these columns on their appearance. The *Reliquary* is devoted to the study of the early pagan and Christian antiquities of Great Britain, mediæval architecture and ecclesiology, the development of the arts and industries of man in the past ages, and the survivals of ancient usages and appliances in the present. The volume for the present year contains an abundance of interesting text and excellent illustrations, and should appeal to a wide circle of readers interested in antiquities.

The Class-room Atlas of Physical, Political, Biblical, and Classical Geography. Edited by E. F. Elton. Third edition, revised. Pp. vii + 48, plates + 11. (Edinburgh and London: W. and A. K. Johnston, Ltd., 1908.) Price 5*s.* net.

THIS widely known atlas has undergone a thorough revision, and may be recommended to the careful attention of teachers in schools where geography is regarded as a school subject of great educational value. The editor has been successful in his aim of providing clear maps, a full treatment of physical features, and a series of climate charts which will meet school requirements adequately.

Flashes from the Orient, or a Thousand and One Mornings with Poesy. In Four Books: Spring, Summer, Autumn and Winter. Book second—Summer. By John Hazelhurst. (London: Hazell, Watson and Viney, Ltd., 1908.) Price 1*s.* 6*d.*

MR. HAZELHURST draws the inspiration for most of his verse from natural objects and phenomena, but occasionally current events, incidents relating to people of the day, and moral questions form the subjects of his sonnets. There are many evidences of the author's versatility in the 295 pieces the book includes, and his imagination and grace will please many readers.

The Country Home. Vol. i., May to October, 1908. Pp. ii+380. (London: Archibald Constable and Co., Ltd., 1908.) Price 5*s.* net.

THE first volume of this very attractive magazine, containing the monthly numbers one to six, is likely to become a popular book in country houses. Nature-study takes a prominent place in the comprehensive table of contents, and much attention is given to horticulture and other suitable pursuits for country dwellers. The illustrations are numerous and good.

LETTER TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

The Objective Demonstration of the Rotation of the Plane of Polarisation of Light by Optically Active Liquids.

SOME years ago a method was described by N. Umow (*Zeitschrift für physikalische Chemie*, 1899, xxx., 711) for demonstrating objectively the rotation of the plane of polarisation of light by an optically active liquid such as a solution of sugar. The method was an ingenious application of Tyndall's experiment on the effect of an opalescent liquid on a beam of polarised light. It consisted in rendering a concentrated solution of sugar somewhat turbid by adding to it a small quantity of an alcoholic solution of resin; on passing an intense beam of plane polarised light into this solution spirals of light of the spectrum colours were seen round the walls of the tube, the colours being, of course, due to rotation dispersion.

Some time ago, in order to show this phenomenon, I made a slight modification of Umow's method in regard to the solution, which appeared to be advantageous. A concentrated solution of sugar was mixed with arsenious oxide, and when as much of the latter had dissolved as possible, the liquid was filtered, and sulphuretted hydrogen gas passed through the filtrate. This gave a clear solution of sugar and colloidal arsenious sulphide, and when an intense beam of plane polarised light was passed into such a solution the phenomenon described by Umow was very clearly seen, although some of the colours were slightly interfered with by the yellow colour of the solution.

For the purposes of a popular lecture I recently prepared a colloidal solution in water of arsenious sulphide alone—to exhibit the Tyndall effect—and another as above described, but I also filled a third tube with a solution of sugar in water (made with tap-water and filtered through ordinary filter paper). I proposed to point out that a beam of plane polarised light passed through this last tube should produce no effect, as the tube contained a true solution.

On trying the experiment beforehand, however, I was surprised to find that the colours were nearly as distinct as, and certainly purer than, in the case of the solution which contained arsenic sulphide. It thus appears that in order objectively to demonstrate optical rotation nothing further than a clear aqueous solution of sugar is necessary, and that Umow's addition of resin and mine of arsenious sulphide were superfluous.

It seems highly probable that the simple experiment of passing a beam of plane polarised light sufficiently intense to show the phenomenon can never have been made before, otherwise the experimenter could not have failed to be struck by the colours produced.

As regards explanation, there seem to be two possibilities:—(1) there may be in the solution containing sugar and water a small quantity of foreign matter, either in the colloid form or in such a fine state of subdivision as to pass through the filter paper, these particles, as in Tyndall's and in Umow's experiment, scattering light and thus showing up the rotation; or (2) the spirals may be due to scattering of light by the sugar molecules themselves, which thus serve to show up their own rotation. The decision must be left to those competent to discuss the question. I will only mention in support of the first suggestion that when a beam of ordinary light is passed through the aqueous sugar solution slight scattering of the light certainly occurs, as is shown by examination of the light coming from the sides of the tube, by means of a Nicol prism. On the other hand, however, the colours seen in the tube containing sugar and water alone are but little inferior in intensity to those seen in the tube containing arsenious sulphide.

I have also passed a beam of plane polarised light through a tube containing a very pure specimen of menthyl acetate ($[\alpha]_D^{16\cdot6} = -79^\circ\cdot5$) which had been carefully distilled. The colours were quite apparent in this case also, being purer, but not so intense as with the sugar solution. The scattering of ordinary light by the menthyl acetate was very slight indeed.

Whatever the cause of the phenomenon may be, it is a very simple matter to demonstrate objectively to a large audience the rotation of the plane of polarisation of light.

T. S. PATTERSON.

Organic Chemistry Laboratory, University of Glasgow, December 18.

THE FINANCIAL STATUS OF THE UNIVERSITY PROFESSOR.[1]

THE Carnegie Foundation for the Advancement of Teaching was instituted for the betterment of the calling of the teacher in the United States, the Dominion of Canada, and Newfoundland. Its first

1 "The Financial Status of the Professor in America and in Germany. Bulletin No. 2. (New York: The Carnegie Foundation for the Advancement of Teaching, 1908.)

"The Relations of Christian Denominations to Colleges." An Address before the Conference on Education of the Methodist Episcopal Church, South, at Atlanta, Ga., May 20, 1908. By Henry Pritchett, President of the Carnegie Foundation. (Printed at Nashville, Tennessee, 1908.)