

Geographen-Kalender. In Verbindung mit Dr. Wilhelm Blankenburg, Prof. Paul Langhans, Prof. Paul Lehmann, und Hugo Wichmann, herausgegeben von Dr. Hermann Haack. Erster Jahrgang, 1903-1904. (Gotha: Justus Perthes, 1903.)

THIS is the first issue of what is likely to prove an indispensable work of reference to geographers of all nationalities, as it gives in a compact form a mass of information on the yearly progress of geographical science in all its branches, besides containing much information of a statistical kind which will be of use to the general public no less than to the expert. Although, perhaps, as is but natural, the greatest amount of attention is given to German work, the book possesses a decidedly international character, account being taken of the most important work done by geographers throughout the world. A set of general tables, &c., for purposes of reference is followed by sections on the main events of the year with a bearing on political geography, on the progress of exploration, the geographical literature of the year, and so on.

A striking feature is the attention paid, in a special section from the pen of the general editor, to the progress of geographical education, though in this, more than any other section, the attention is focused on German work, hardly anything being said as to the steps lately taken in other countries to improve the position of geography in the school and college curriculum. Thus, when speaking of periodical publications devoted to this object, Dr. Haack makes no mention of the *Journal of Geography*, published in the United States, or of the *Geographical Teacher*, the organ of the Geographical Association in this country. From a purely practical point of view, a most useful section is the very complete "Adressbuch," which gives the names and addresses of geographers of all nationalities, with a brief statement of their special lines of study or research. The little book, which is most tastefully got up, concludes with an excellent series of maps illustrating the principal geographical events of the past year.

Biological Laboratory Methods. By P. H. Mell, Ph.D., Director of Alabama Experiment Station, Professor of Geology and Botany, Alabama Polytechnic Institute. Pp. xii + 321; 127 figs. (New York: The Macmillan Company; London: Macmillan and Co., Ltd., 1902.) Price 6s. 6d. net.

THIS is a well-conceived and eminently useful book, which within convenient compass and in clear language gives an account of microscope and microtome, staining and mounting methods, photomicrographs, and so on. It begins at the beginning, and expounds with simple accuracy the various instruments and methods of the well-equipped biological laboratory. After describing the microscope and the microtome and their accessories, the author discusses, in successive chapters, fixing, imbedding, staining, mounting, and drawing. Five chapters are devoted to photomicrography, and others follow on bacteriological methods, special methods (e.g. decalcification, injection, maceration and polarisation). The book ends with useful formulæ and tables, and with an appendix on laboratory furniture. We have tested the book as to various points, and have found it practical and lucid in every case. It is in part a compilation of hundreds of duly acknowledged useful hints and recipes from workers all over the world, but it also expresses the work of one who has faced detailed difficulties in actual practice and overcome them. We have come across many illustrations of American neatness and ingenuity which

were fresh to us, and we confidently recommend the book as a worthy companion to Bolles-Lee's *vade mecum* and similar works.

Ijain; or, the Evolution of a Mind. Pp. ix + 207.
Isola; or, the Disinherited. Pp. xv + 153. By Lady Florence Dixie. (London: The Leadenhall Press, Ltd.)

THESE are youthful productions of a versatile writer, whose object is to spread the truth about everything at whatever cost. "Ijain" traces the development of the mind of an unusually thoughtful child, and "Isola" is a drama, the object of which is to secure greater freedom and fuller opportunities of work for women.

LETTER TO THE EDITOR.

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Radio-active Gas from Bath Mineral Waters.

PROF. J. J. THOMSON has shown that the air extracted from Cambridge tap-water and from the waters of certain deep-level springs is mixed with a radio-active gas (NATURE, vol. lxxviii. p. 90). It appeared of special interest to determine whether such a constituent existed in the hot mineral springs of Bath. Samples of water direct from the King's Bath Spring have been examined at the Blythwood Laboratory, and have been shown to contain a radio-active gas in solution. In the first experiments the gas was expelled from a flask containing a litre and a half of water by boiling under a pressure of about half an atmosphere. The amount of gas obtained after passing through a number of drying tubes was small, as was shown by the fact that the pressure only altered by a few centimetres. Yet this was sufficient to produce a marked increase in the ionisation in the testing vessel. The gas was also extracted from the water by exhausting the testing vessel and allowing a current of air to bubble through the water and a series of drying tubes into the vessel. In this case the ionisation current increased from four to five times.

Whichever method was employed for introducing the gas into the testing vessel, it was found that the effect did not assume its full value instantaneously, but gradually increased to a maximum and then diminished. The activity reached a maximum in rather more than one hour after the admission of the gas. About half an hour later the activity had diminished to one-half the maximum value. Rutherford (*Phil. Mag.*, v. p. 448, 1903) has observed a similar effect when the emanation from radium is introduced into a closed space. In this case the maximum activity is reached after five or six hours, and the activity decays to half value in 3.71 days. The gas from the Cambridge water lost from 5 to 10 per cent. of its activity in twenty-four hours. The gas from the Bath water appears to be intermediate in character between the radium emanation and the Cambridge gas on the one hand, and the thorium emanation on the other. The activity of the thorium emanation diminishes to one-half in one minute.

If the therapeutic action of the Bath waters is due in any degree to the radio-activity of the gases contained in them, the fact that the activity of the gas now being investigated begins to decrease so soon after the gas has been liberated acquires special significance. The opinion is commonly held that the waters of various spas possess greater efficacy when used on the spot. It is probable that this opinion, though doubtless fostered by interested individuals, has some basis in fact, and it is possible that the underlying fact may here find an explanation.

Prof. Dewar has shown that the Bath waters contain helium. The presence of a radio-active and of an inert gas in the same water is of interest from the point of view of the possible transmutation of such elements.

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