

manner, some of the more striking phenomena of the earth. The earth as a planet is first referred to, then the materials of which it is composed, which include the composition of the lithosphere, of the atmosphere, and of the hydrosphere. Next are discussed the laws of energy, and the past history of the earth as gathered from its present aspects, while the last chapter is devoted to the evolution of the earth, with sections on spectrum analysis, and theories of planetary origin. To anyone wishing to obtain a general survey of this many-sided subject, physiography, these pages should be of great service. As has been said before, the information in many cases is brief, and in some cases too brief for explanatory purposes. This is, however, counterbalanced to some extent by a number of useful references at the end of each chapter. An appendix, which may prove handy to teachers, gives a list of suitable lantern slides for illustrating the subject-matter.

Songs of the Russian People. Collected in the Governments of Arkhangelsk and Olonetz, by Th. M. Istomin and G. O. Dütsch. (St. Petersburg, 1894.)

THE northern provinces of Russia are the parts of the empire where the old popular songs are still kept in the memory of the people in their greatest purity. Elsewhere they are often forgotten, or are altered by the intrusion of modern music, very often of the music-hall type. In 1886 the Russian Geographical Society sent out a small expedition in order to collect the really old popular songs—religious, epic, wedding, and so on—and 119 of them are now published, both words and music, in the above-named collection. The words have been taken down by M. Istomin, and the music by M. Dütsch, who have both had a great deal of previous experience in that sort of work. Several songs of the collection are quite new, but the book's chief value is in the melodies of the epic songs (*byliny*), which now become known for the first time. It had always been supposed that the epic songs had no melodies, and were simply delivered in a sort of monotonous recitative; but it now appears that some of them have their special melodies, grave, most beautiful, and bearing the stamp of great antiquity. A map appended to the book shows the places visited by the expedition.

Visions of the Interior of the Earth, and of Past, Present, and Future Events. By H.R. and M.S.H. the Prince of Mantua and Montferrat. (London: Simpkin, Marshall, and Co., 1894.)

"SHADOWS to-night have struck more terror to the soul of Richard,
Than can the substances of ten thousand soldiers
Armed in proof, and led by shallow Richmond."

These lines are brought to mind by Prince Mantua's visions, which are calculated to produce a more or less terrifying effect upon the gentle reader. We cannot review the book seriously, for it is merely a record of what the author heard and saw while in a state of trance, and such revelations can hardly add to our knowledge of the earth's interior. Mr. Baxter, and the Society for Psychical Research, may find the volume interesting.

The Complete Poetical Works of Constance Naden. (London: Bickers and Son, 1894.)

IN one of his essays, Macaulay, with his usual leaning to antithesis, holds that "as civilisation advances, poetry almost necessarily declines." His opinion was that science and poetry are antagonistic. The late Poet Laureate, however, showed that scientific facts and phenomena could be clothed in language at once poetical and impressive. Miss Constance Naden, who

died at the end of 1889, won for herself a high place among poets of science and philosophy, and her admirers include many distinguished votaries of these branches of knowledge. Astronomy, geology, evolutionary ethics, and the nebular theory are a few of the subjects which inspired her to write, and that in a manner which commands admiration. She was a devoted disciple of Mr. Herbert Spencer, and, indeed, was a witness to the truth of his words: "It is not true that the cultivation of science is necessarily unfriendly to the exercise of imagination and the love of the beautiful. On the contrary, science opens up realms of poetry where, to the unscientific, all is a blank."

LETTERS TO THE EDITOR.

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Some New Facts with regard to "Bennettites."

THE remarkable state of preservation of many Palæozoic plants, and some few Mesozoic forms, has raised palæobotany to a position of considerable importance in certain fields of botanical investigation. Endless synonyms, and specific determinations of more than doubtful value, have not unnaturally prejudiced botanists against the study of plant fossils. The scientific treatment of the mineralised tissues of extinct forms has, however, been productive of exceedingly important data towards the better understanding of the lines of plant evolution. Synthetic types and intermediate forms of plant structure are already fairly abundant, and the various suggestive facts revealed by a study of their remains are gradually assuming a more definite shape.

The genus *Bennettites* is an example of special interest among ancient plant types. This name was introduced by Mr. Carruthers in his important monograph of 1868, on the fossil Cycadean stems from the Secondary rocks of Britain.¹ The excellent preservation of the species *B. Gibsonianus* enabled this observer to give a detailed account of certain reproductive organs, which were embedded in the armour of the persistent petiole bases enclosing the plant stem. The affinities of this species have since been presented in a somewhat different light by Solms-Laubach,² and he is led to the conclusion that the *Cycadeæ* are the nearest known allies of the *Bennettitææ*. There are, however, important differences between the two groups which preclude the idea that one has been directly derived from the other. The Marquis de Saporta and various other writers have contributed to the literature of *Bennettites*, and the speculations propounded as to its true position have been numerous enough.

We are indebted to the careful researches of Prof. Lignier, of Caen, for some recent additions to our knowledge of this genus, and his exhaustive monograph carries us a step further towards the solution of the *Bennettites* problem.² The specimen which forms the subject of Lignier's work was found by Morière, in 1865, in the Oxfordian beds of Vaches-Noires; two years later the fossil was described by its discoverer as part of a true Cycadean plant. In 1881, Saporta and Marion referred this Oxfordian fruit to the genus *Williamsonia*; and subsequent writers have assigned the fossil to various positions in the plant kingdom.

The specimen of *Bennettites Morieri* (Sap. and Mar.) described by Lignier is ovoid in form, and has a length of 55 mm., with a breadth of 35 mm. At the base a fractured surface reveals the existence of a slightly convex receptacle, from which is given off a compact cluster of long peduncles, each of which bears at its apex an oval seed. The seed-bearing peduncles are surrounded by several involucre bracts closely applied to

¹ *Trans. Linn. Soc.* vol. xxvi., 1870, p. 663.

² *Annals Botany*, vol. v., 1890-91, p. 419 (translation from *Bot. Zeit.*, 1890.)

³ "Végétaux fossiles de Normandie. Structure et affinités du *Bennettites Morieri* (Sap. et Mar.)." With six plates. Octave Liguier. (*Mém. Soc. Linn. Normandie*, vol. xviii., 1894.)