

that lie between Hall's farthest north point and the Pole.

True, there are a few unhealthy croakers, as there always have been, and will be, we fear, for many generations to come, who ask What is the good of incurring so much danger and expense, for the mere gratification of curiosity, or, at best, to satisfy the wishes of a few men of science? But we feel confident that the great body of the English people will ask no such questions, but would hail with enthusiasm the decision of the Government to crown the glory which England has hitherto gained in Arctic exploration by sending out one more expedition whose task it would be to return with the long-sought-for secret in its keeping. It is beginning to dawn upon the ordinary English mind that, after all, the apparently unpractical researches of scientific men are frequently pregnant with results of the most important practical bearing on the welfare of the country and the race.

As for the element of danger, Mr. Markham convincingly shows by unimpeachable statistics, that the loss of men by the Smith Sound route, from causes connected with the climate and the peculiarities of the service, is almost incredibly small. One of the most distinguished medical officers who has served in the Arctic regions declares, that "of all seas visited by men-of-war the Arctic have proved the most healthy. . . . The risk by climate and disease which is run in a voyage to the Arctic seas—such as a Royal Expedition necessitates—is not greater than that which a ship like the *Challenger* will incur in her voyage of discovery." The dangers, or rather difficulties, which have to be faced are only such as brave men are eager to confront, and the service is one which our naval officers and men glory in in time of peace, and is certainly an infinitely better use to put them to than to keep them idling at home or on foreign stations. As to the question of expense, the article in a recent number will show that the less said by Government on this score the better.

All these and many other points in connection with Arctic exploration will be found fully and clearly discussed in Mr. Markham's volume, in which the invaluable results, scientific and practical, in nearly all departments of Science to be obtained from a Government Expedition are set forth with great fulness, clearness, and force. The volume concludes with an account of the interview that took place last year between the Arctic deputation and Mr. Lowe, the result of which was such as to give good grounds for expecting that this year Government will feel bound to organise an adequate expedition to leave our shores next spring to find its way to the Pole by the Smith Sound route.

The numerous maps by which the volume is illustrated are beautifully drawn, and are of the greatest assistance in enabling the reader to understand the interesting story of Arctic discovery so well told by Mr. Markham. As a mere story the work is a masterly one; and if anyone wants to know within short space what has already been done in the discovery of the Arctic regions, what still remains to be done, and what results are to be expected from further exploration, he could not do better than read Mr. Markham's "Threshold of the Unknown Region."

OUR BOOK SHELF

Annual Record of Science and Industry for 1872; edited by Spencer F. Baird, with the assistance of eminent men of Science. (New York: Harper and Brothers, 1873.)

THE praise which we were able to bestow on the first of Prof. Baird's Annual Records, that for 1871, can be fully repeated with regard to its successor. The only method of "reviewing" a work of this kind, is to refer in general terms to its scope, and to the degree to which the compiler appears to have fulfilled the promises of his programme. On these points we can speak in the most favourable terms. As far as a cursory glance through the pages of the volume enables us to speak, we believe that purchasers of the book will find it a most useful addition to their library shelves. The paragraphs refer to the most noteworthy additions to scientific knowledge or observation made during the year, and have been compiled with commendable terseness and perspicuity from a large range of English, American, and Continental sources. A carefully *raisonné* table of contents, and an alphabetical index, will enable the student to turn without difficulty to any desired subject. Although absolute freedom from errors, typical and otherwise, can hardly be expected in a work with so large a scope, the American "Record" contrasts most favourably in this respect with some similar volumes published in this country. We do not know where to find a more complete record of the science of the year; and we shall hope to see a long series of these useful volumes.

The Borderland of Science. By Richard A. Proctor. (London: Smith, Elder, and Co. 1873.)

THESE Essays are reprinted from the *Cornhill Magazine*. The titles are as follows:—"The Herschels and the Star-Depths;" "A Voyage to the Sun;" "A Voyage to the Ringed Planet;" "A Giant Planet;" "Life in Mars;" "A Whewellite Essay on the Planet Mars;" "Meteors—Seed-bearing, and otherwise;" "A Recent Star-shower, and Star-showers generally;" "News from the Moon;" "Earthquakes;" "The Antarctic Regions;" "A Few Words about Coal;" "Notes on Flying and Flying-Machines;" "Gambling Superstitions;" "Coincidences and Superstitions;" "Notes on Ghosts and Goblins."

Sommario delle Lezioni di Fisica, date dal Professore Enrico Dal Pozzo di Mombello, nella Libera Università di Perugia. (Foligno: Pietro Spariglia, 1873.)

GANOT'S Treatise on Physics has been translated into Italian and is no doubt largely used in the country; also in 1870 Prof. Cantoni, of Milan, published a course of Physical Lectures. The work before us by Prof. Dal Pozzo is to some extent based upon that of Cantoni; it is a summary of two courses of lectures delivered in the free University of Perugia. The University (founded in 1307) is one of the oldest in Europe, and possesses a good library, botanical gardens, and mineralogical collections. We cannot at this moment call to mind any scientific associations connected with the place, as with Pisa, Bologna, and Pavia. The town itself has been mentioned any time for two and twenty centuries, and it is a noted school of music.

We can scarcely judge of the science of Perugia from the work before us. The students must be very clear-headed men if they can follow Prof. Pozzo's arrangement. It is certainly most novel. It may have its advantages. He begins cleverly enough with an account of the "Energy of the Universe," embracing some general properties of bodies, actual and potential energy, conservation and dissipation of energy. The author uses the terms *forza attiva* and *forza di posizione*, in place of our more usual terms. We are glad to find him acquainted with the works of Thomson, Balfour Stewart