not have read the proof of names for this continent. It is a little difficult for the English reader to detect 'Shahaptian' in 'Chahaptes.' The Trenton gravel controversy is an open question, and Dr. Deniker should have left it so on page 511. He does the cause no good, and his friends, Wilson and Boule, harm in setting them up as a court of last appeal.

O. T. Mason.

Malay Magic: Being an Introduction to the Folk and Popular Religion of the Malay Peninsula. By Walter William Skeat, with preface by Charles Otto Blagdon. London, Macmillan & Co. 1900. Pp. xiv + 686, 7 figs., 28 plates. Price, $6.50.

The folk mind, everywhere, stands in the same relation to truth that a celestial globe occupies with respect to the heavens. Here and there a star is in the right place, but all the rest is fanciful. But truth is exact agreement between what is and what is said, so, notwithstanding folk-lore is fancy, the beliefs are actually held, and we may have the truth about them. No other student within our acquaintance is better equipped for a work of this kind than Mr. Skeat.

Folk-lore, in this volume, is taken to mean the lore of the uncivilized races, containing in the germ, as yet undeveloped, the notions from which religion, law, medicine, philosophy, natural science and social customs are evolved. The operative side of living is excluded, but the regulative thoughts are folk-lore.

The word Malay incidentally includes with the people of that race in the peninsula others of the same blood near by, but the lore of the Chinese and other non-Malayan folk is excluded. The magician is the middle man between Malays and the spirit world. If he knows and reveals, he is *Pawang;* if he heals, he is *Bomor.* All that either does or says is classed by Mr. Skeats under magic. The Malays have had a series of religions, to wit, the aboriginal cult, which is a primitive sort of Brahmanism, with extensive pantheon, Buddhism and Mohammedanism. Now, it is easily comprehended, as Mr. Skeat shows, that these *Pawangs* and *Bomors* have nothing to do with *Imams*, *Khatibs* and *Bilals* of the mosques. Also, if the reader is familiar with the present cult of the Latin American tribes, or of the Filippinos, he would not be shocked to see a long string of Malay invocations and magical rites performed before Hindu divinities, demons, ghosts and nature spirits, beginning with: "*In the name of God, the Merciful, the Compassionate,*" and ending with: "*There is no god but God, and Mohammed is His prophet.*"

In order to prepare the way for a better comprehension of Malay magic the author devotes the first fifty pages to native cosmogony, anthropogony, animism and notions about souls. Nearly as many pages discuss the world of spirits, the Malay pantheon and its relation to our world, as well as the class of men who act as go between from world to world.

The remainder of the work gives us the story of Malay beliefs and practices concerning fire, air, earth, water, and the life of man, in which the spirit world is involved, together with the description of paraphernalia the recital of formulæ, prayers, sacrifices, lustrations, fastings, divinations and witchcraft involved. Wisely, in the midst of so much jumbling of ethnic creeds and cults, the author abstains from attempts to analyze, and contents himself with recording in the most scrupulous manner the data on which philosophic discussion must be based. Pages 581–672 are devoted to Malay texts.

It would be unkind to point out little errors and omissions, since an enforced absence from England prevented the author from revising the proofs. The illustrations are not so good as those of Dr. Fewkes along the same line published by the Smithsonian Institution.

O. T. Mason.

Plant Structures. A second book of Botany. By John M. Coulter, A.M., Ph.D., Head of Department of Botany, University of Chicago. Twentieth Century Text-Books. D. Appleton & Company. 1900. Pp. x + 348. 12mo, with 289 illustrations.

Several months ago the companion volume to the work now under review appeared, and was noticed in Science (December 8, 1899). That volume was designated as 'a first book of

botany,' while this is said to be 'a second book.' The former ('Plant Relations') attempted to treat the subject from an ecological standpoint, and in our opinion the author failed to make it 'a first book'; in the present volume morphology is the dominant subject, and, as if in some doubt himself, the author says in the preface: "It may be, however, that many teachers will prefer to begin with the morphological standpoint as given in this book. Recognizing this fact 'Plant Structures' has been made an independent volume that may precede or follow the other, or may provide a brief course of botanical study in itself." This remarkably flexible purpose has been well carried out by the author. He has made an excellent *first* book of botany, in spite of its title.

The book follows the approved sequence from the simpler to the more complex plants, and the treatment is that which has been developed in the best botanical laboratories. The very helpful 'Suggestions to Teachers,' prepared by Dr. Caldwell to accompany the book, emphasize the practicability of the course here outlined. One feels as he runs over the pages that he is on ground which has been traversed again and again by teachers and pupils, and that all the work outlined *can* be done, because it *has been* done again and again.

We should like to take up the chapters in detail, but that cannot be done in a brief notice. We could ask here and there for a less confusing sequence (*e. g.*, where Slime Moulds and Bacteria are taken up after Toadstools and Puffballs, and Coleochæte in the midst of the Bryophytes), and far less of generalization before the pupil has some facts in hand (*e. g.*, in Chapter III., where the evolution of sex is discussed when he is as yet in total ignorance of the structural facts on which the theory is hung). On the other hand, the author's generalizations in the form of summaries from preceding groups (*e. g.*, Thallophytes, Bryophytes and Pteridophytes), are admirable.

The illustrations are good, and well chosen. Many have a delightful freshness, in sharp contrast to the well-worn cuts so long familiar in similar text-books.

CHARLES E. BESSEY.

THE UNIVERSITY OF NEBRASKA.

Observations made at the Blue Hill Meteorological Observatory, Massachusetts, U. S. A., in the Years 1897 and 1898. Under the direction of A. LAWRENCE ROTCH, A.M. With an Appendix containing the *International Cloud Measurements during 1896–97.* Annals of the Astronomical Observatory of Harvard College. Vol. XLII. Part II. 4to. Cambridge, 1900. Pp. 131–280.

The cloud work done at Blue Hill Observatory is known to meteorologists the world over, the publications on clouds already issued by this Observatory having been among the most important contributions to meteorology in recent years. This satisfactory result has been made possible through the liberality of Mr. A. Lawrence Rotch, the founder and director of the Observatory, and through the admirable work done at the Observatory by Mr. H. Helm Clayton and his associates, Messrs. S. P. Fergusson and A. E. Sweetland. Mr. Clayton's *Discussion of the Cloud Observations* made at Blue Hill (Annals Harv. Coll. Obs'y, Vol. XXX., Part IV.), is the most complete publication on clouds ever issued (see SCIENCE, N. S., Vol. V., 1897, pp. 468–469). When the 'International Cloud Year' was begun on May 1, 1896, in accordance with the recommendation of the International Meteorological Committee in 1894, the Blue Hill Observatory was one of the stations in the United States which co-operated in this special work, the other stations being those under the jurisdiction of the Weather Bureau. The present volume includes the usual meteorological observations made during 1897 and 1898, publication of which was delayed in order that an appendix containing a discussion, by Mr. H. H. Clayton, of the *Measurements of Cloud Heights, Velocities and Directions*, carried out during the 'Cloud Year,' might be included. In this Appendix are printed the tables containing details of all the cloud observations made throughout the 'Cloud Year,' together with tables showing the mean heights and mean velocities of the clouds at different hours and seasons; the number of clouds and measurements; the mean, maximum and minimum heights and velocities by months; the mean heights with different temperatures and pressures; the mean heights with different gradi-