

picturesque style which sometimes startles the reader with its daring.

We cannot do more than refer to a few of the interesting facts regarding Haeckel to which the author gives prominence. "Haeckel's genealogical tree spreads into the legal profession in a curiously complex way." This inheritance was expressed in Haeckel's imperious craving for clear lines and systematic arrangement, and in his fondness for formulating "laws." Apart from the influence of his teachers, such as Johannes Müller and Virchow, and of his friends, such as Gegenbaur, it was the sea—at Helgoland, at Nice, at Messina—that really won Haeckel for zoology. Regarding his pupillary period, the curious fact is mentioned that one of the theses he defended when taking his doctorate at Berlin was the impossibility of spontaneous generation. In 1860 Haeckel was "profoundly moved" by a first reading of "The Origin of Species," and conversations with Gegenbaur finally confirmed his conviction of the truth of Darwinism—a conviction which found its first, though not prominent, expression in his monograph on *Radiolaria* (1862). In 1863, at the Stettin congress, when Haeckel made his first open confession of the faith that was now in him, he won a laurel crown at the Leipzig athletic festival for the long jump (20 feet), and the translator justly remarks that we have here "the note of much in his character." What many zoologists, who neither misunderstand Haeckel nor fail to do him homage, feel, is that the impetuous, daring, pioneering evolutionist of Jena has taken many long jumps which scientific caution makes them refuse.

A fine chapter of the book is devoted to what is perhaps Haeckel's best and most lasting work, the "Generelle Morphologie" (1866). It was written, partly as a relief from sorrow, in less than a year, during which the author lived the life of a hermit, sleeping barely three or four hours a day, with habits so ascetic that he wondered at his survival. But the great work was too difficult for the general reader, too philosophical for the biologists, too biological for the philosophers, and thus with a clearly defined mission Haeckel set himself to the task, which he has so successfully accomplished, of making monistic evolutionism "understood of the people."

One of the many interesting incidents related in Bölsche's appreciation may be quoted.

"A stern theologian presented himself in person at the chateau of Karl Alexander, Grand Duke of Weimar, and begged him to put an end to this scandal of the professorship of Haeckel, the arch-heretic. The Grand Duke, educated in the Weimar tradition of Goethe, asked, 'Do you think he really believes these things that he publishes?' 'Most certainly he does,' was the prompt reply. 'Very good,' said the Grand Duke, 'then the man simply does the same as you do.'"

As Prof. Bölsche closed his charming biographical sketch in 1900, the translator, who has done his work admirably, has added a chapter on the crowning years, dealing with the controversies over the "Riddle of the Universe," and other events. The whole work, helped by the excellent portraits, leaves one with a grateful impression of a remarkable personality who has all his life been a good fighter yet most lovable withal,

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who has done much for pure science and yet has never ceased to say "Das Leben ist schön."

(3) In these three lectures, delivered last year in Berlin, Prof. Haeckel reiterated with wonted frankness and fearlessness his evolutionist and monistic convictions. He trounced the theologians and metaphysicians for ignoring or combating or misrepresenting the secure results of science, and he did not refrain from reproving some of his own craft—even his revered master, Virchow—for trying to sit on both sides of the fence. He is himself so well satisfied with the naturalistic formulation of what goes on, and has gone on, in the wide world, that he has no patience with those who seek for explanations that science *ex hypothesi* can never give.

The law of evolution and the law of substance (the conservation of matter and energy) "are irreconcilable with the three central dogmas of metaphysics, which so many educated people still regard as the most precious treasures of their spiritual life—the belief in a personal God, the personal immortality of the soul and the liberty of the human will." Not that these are to be driven out of the world. "They merely cease to pose as truths in the realm of pure science. As imaginative creations, they retain a certain value in the world of poetry."

To many this will seem a false antithesis, an opposition of incommensurables. It can hardly be pathologically that the human spirit has so persistently attempted to get beyond common sense and empirical science to a formulation of the efficient causes, the significance, the purpose of all becoming. As a matter of fact, Haeckel himself is a worshipper of "a Monistic god, the all-embracing essence of the world, the Nature-god of Spinoza and Goethe, identical with the eternal, all-inspiring energy, one, in eternal and infinite substance, with space-filling matter," whose "will is at work in every falling drop of rain and every growing crystal, in the scent of the rose and in the spirit of man."

The lectures have been very successfully translated by Mr. McCabe. We may note that the date given for Weismann's theory of germ-plasm is 1844, which seems rather early, while that of Lamarck's "Philosophie Zoologique" (1899) is rather late.

PRACTICAL GEOGRAPHY.

An Introduction to Practical Geography. By A. T. Simmons and Hugh Richardson. Pp. xi+380. (London: Macmillan and Co., Ltd., 1905.) Price 3s. 6d.

THIS book is based on an excellent idea, which has in many ways been excellently carried out. Its design is to show how to cultivate in the teaching of geography the methods of scientific training, the methods by which boys and girls are guided to reach sound conclusions from their own observations and experiments.

Unfortunately, the execution of this design is marred by the apparent absence from the minds of the authors of a clear idea of what geography is. Geography, it must be admitted, is a subject which

is sadly in want of a generally accepted definition fitted to give a clear idea of its scope. But though this definition is lacking, the handling of the subject is coming to be more and more in accordance with the idea that the governing function of geography is to indicate the nature and relative importance of the influences exercised on the life of the globe, especially human life, by local conditions and place relations. It is evident that this idea has been implicitly in the minds of the authors in the preparation of some parts of the book, but it is equally evident that the idea has never been expressly recognised by them, and accordingly it has not been consistently acted on. One result is that a good deal is admitted into the book which has no place in geography, but a still more serious result is that again and again the practical guidance stops short of the goal to which the learners should have been led.

Some examples may be given. Inevitably the work lays stress on map-making and the observations on which maps are based. Maps being necessary in the study of geography, boys and girls must be got to understand as clearly as possible how far those records of the facts which have to be studied serve in place of the actual facts, and in what points they are apt to mislead. Now, while there is much that is admirable in what is said, shown, and hinted on pp. 51-72 on hachures and contours, there is no hint of what hachures and contours respectively fail to represent. The subject of projections is rightly dealt with, for within due limits it is not beyond the reach of school children. But here the failure is more striking. The only reason for taking up this subject is to get the learners to understand how inevitably any projection must fail to represent the truth in some points, to perceive in each case the chief failures, and to discern the reasons for using certain projections in spite of their defects. But on these points no hint is given. The principle of the construction of what is called Mercator's projection is described, but, strangely enough, no question is put with the view of getting those who use the book to recognise its obvious faults, and no indication is furnished of its compensating utilities. This, indeed, would have been impossible, at least in the case of its utility for marine charts, inasmuch as the projection described is not Mercator's, but the useless central cylindrical. So, too, the projection described as the conical is not the conical, and is, in fact, no used projection whatever.

To take another subject, under the heading of isotherms and parallels of latitude we have on pp. 227 and 228 a large number of average mean temperatures for the months of January and July, but for different places, thus failing to afford an opportunity for comparing ranges of temperature. Then again, under the heading of aspect and temperature, pp. 241-3, the important subject of the difference of temperature between the east and west of the northern oceans and land-masses is dealt with, but is illustrated only by certain figures from Hann presenting this difference in the least instructive light, in the manner which fails to bring out the difference which is of most

practical importance to the inhabitants of the earth. The figures show only the difference in the mean annual range of temperature, and do not indicate that this difference is brought about in every case in a greatly preponderant degree by the varying range of the winter temperatures.

Such defects are worth pointing out, chiefly because the book is on the whole so good that one cannot help earnestly wishing that it were better, and because it may be hoped that they will be removed in a future edition. Even as it is, it must be recognised that the immense pains taken by the authors have resulted in the preparation of a work which is full of suggestiveness, and ought to supply a countless number of useful hints to capable teachers of geography.

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FOLKLORE AND MEDICINE OF THE ZULU-KAFIR.

Bantu Folklore (Medical and General). By Dr. Matthew L. Hewat. Pp. 112. (Cape Town: T. M. Miller; London: J. and A. Churchill, n.d.)

THIS is an interesting little work. It will be of value to students of primitive races. It deals chiefly with the ideas of the South African Kafir tribes on the subject of magic, medicine, diseases, and initiation ceremonies. Incidentally it gives a great insight into the extraordinary mixture of superstition, quackery, and practical research in native medicine. The Kafirs are nearly always at fault in their guesses as to the origin of diseases. Some maladies are thought to be caused by the supernatural influence of snakes or of water monsters, half man and half animal, or by the strange bird called impundulu, which by some is thought to be the origin of lightning. Other diseases are attributed to direct poisoning—the word for poison, *ubuti*, being a very old Bantu root that means the “essence of the tree.” This is a word that in many Bantu languages means medicine quite as much as poison, all the medicines of primitive man having been derived from the bark, sap, fruit, or leaves of trees. Some of the “snakes” alluded to by the author as the cause of intestinal diseases (in the native mind) are evidently distorted accounts of guinea-worm or tape-worm.

The king or chief of the tribe is theoretically regarded as the first amongst the local medicine men. Professional doctors, however, may be of either sex. They are often divided into the following classes: (1) Witch doctors—diviners, mesmerists, prophets, or secret service agents, “faith-healers,” and masseurs. The last-named type of witch doctor is the only one that performs any good service. Like most negro races, the Kafirs believe greatly in the efficacy of massage. (2) The surgeon or bone-setter, who also practises cupping. (3) The physician or herb doctor. In addition there are two special classes of medicine men, who attend to the bringing of rain or the prediction and direction of warlike operations. Very great misery and loss of life were caused until quite recently by the witch-hunting practices of the medicine men. These priests often became petty tyrants, in-