his. The philosophy of the future will not act as they did, will cease to reflect upon the scientific assumptions, will take them merely on faith, with a few hints about the insanity of inquiring into them, and with a little melancholy contemplation of those dark ages when men used even to ask fundamental questions. In brief, the philosophy of the future will not philosophize.

Devotion and enthusiasm in the presence of the greater questions of religion and science are so rare that one rejoices to find any one so enthusiastic and devout as Dr. Abbot. But when he undertakes to discuss the philosophic questions proper, Dr. Abbot, by his ferocious denunciation of the whole past course of modern thought, reminds us of a certain newspaper musical critic, whose abuse of all the better concerts that he chances to attend we often have read with huge delight. The critic in question is, namely, by the will of an evil fortune, as accomplished and scholarly a musician as many years of toil could produce. Unhappily, however, it chances, that, by the will of God, his nature was so constituted that he hates music. The sorrows of this man are hard to conceive. JOSIAH ROYCE.

STOKES'S LECTURES ON LIGHT.

THE singular origin of these courses of lectures was described in this journal (vol. iii. p. 765) in the review of the first. Though by the same author as the first, the subjects treated are far more generally understood by the ordinary reader of scientific literature, and consequently hardly admit of such original treatment as characterized the former book. Of the four lectures here given, the first treats of phosphorescence and fluorescence; while the remainder, with the exception of a portion of the second lecture, which relates to the rotation of the plane of polarization, is devoted to spectrum analysis and its revelations. Perhaps the most interesting passage to the scientific reader occurs on p. 45, relating to the author's claims as an original discoverer of the principles of spectrum analysis. The warm discussions to which this topic have given rise are numerous, and, as is well known, some of the most eminent English writers have attributed the priority of the discovery, without restriction, to Stokes, leaving for Kirchhoff, beyond credit for an independent discovery, only the honor of having extended the method to the detection of elements in the sun other than sodium. Thus Tait, in his 'Recent advances in physical science,' and Sir William Thomson, in the President's address (*Brit. ass. rept.*, 1871). It was the latter which called out Zöllner's vigorous retort and arraignment of English men of science in the introduction to his 'Ueber die natur der cometen.' In this passage, after describing Foucault's observations on the spectrum of the electric arc, the author says, "On this ground, it seemed to me that the substance which exercised the selective absorption in Foucault's experiment must be free sodium. This might conceivably be set free from its compounds in the intense actions which go on in the sun or in the electric arc; but I had not thought that a body of such powerful affinities would be set free in the gentle flame of a spirit-lamp, nor perceived that the fact of that flame's emitting light of the definite refrangibility of D, entails, of necessity, that it should absorb light of that same refrangibility."

Burnett lectures on light. Second course, on light as a means of investigation. By GEORGE GABRIEL STOKES. London, *Macmillan*, 1885. 24°.

IN a recent paper by Prof. S. I. Smith (*Ann. mag. nat. hist.*) on the decapod (crabs, lobsters, etc.) crustaceans from the Albatross' dredgings in the North Atlantic, there are some interesting points brought out regarding the deep-water fauna. An unusually large number — a third — of all the species of decapods obtained were from depths greater than one thousand fathoms, and many of the species were remarkable for their large size. Specimens of one brachyuran had the carapace five inches long and six broad, while others of an anomuran were yet larger, the outstretched legs measuring over three feet in extent. Not only were there many large species, but there was an apparent absence of all small species. Their color was also found to be very characteristic. A few species were apparently nearly colorless, but the great majority were of some shade of red or orange, and there was no evidence of any other bright color. Of twenty-one abyssal species, eight possessed normal black eyes, two had abnormally small eyes, three had eyes with light-colored pigment, while of the rest the function was doubtful. Of five species from below two thousand fathoms, one had normal well-developed eyes, and the others small, imperfect, or doubtful. From these facts, in connection with others, the author concludes, that, despite the objections of physicists, some light probably penetrates even beyond two thousand fathoms; and he thinks, from the purity of the water in mid-ocean, light might reach this depth as readily as to five hundred, or even two hundred, nearer shore. However, he finds that there is an undoubted tendency towards radical modification or obliteration of the normal visual organs in deep-water species. The large size and small number of eggs were also observed as a marked characteristic of many deep-sea decapods.