

modern militarism—is as interesting as it is pardonable.

The following are some of the main characteristics of the author's point of view:—(1) While defending metaphysics from the charge of being "built upon air or quicksands," he readily admits that it has not always taken full advantage of the science which it knows, and that greater accuracy of scientific detail ought to be displayed if it is to appeal to the "plain man" with some knowledge of physics, chemistry, and biology. In the same spirit the chapters on God and the Absolute and Human Immortality attempt to do something like justice to the religious aspirations of the "plain man," which are so severely neglected in such a work as "Appearance and Reality." (2) Mr. Arnold prefers *activity* to *existence* as a basis for investigation. The lower animals, in his view, display only "teleological activities"; the entity "mind" (self-conscious and introspective) belongs only to men. And perhaps not even to all men: "a human being might theoretically pass through life and never be actual mind; possibly with some savages this is almost the truth." (3) Again, Mr. Arnold is fond of the contrast between the individuation (real and objective in every sense) by means of the atom or the electron—"the true physical entities"—and the individuation by means of colour, sound, and the like which depends on our "particular sensuous evolution." The latter form of individuation, which finds expression particularly in the "material totalised image," seems therefore to show that in mind (including "teleological activity") there is something new in principle. "But by asking whether it is a new entity we merely confuse matters. For we should thus assume that the physical world is once and for all limited to atomic activities, whereas all observations tend to show that the various entities are continually changing and re-organising themselves, and developing new relations and qualities." In one sense Mr. Arnold claims that his view of mind in the non-introspective animal is as materialistic as it could be, since mind under such conditions "is matter totalised in a special manner in relation to an external crisis." But he hastens to add that "premental matter was not merely the matter of physics and chemistry." And mind in man he certainly regards as something very different.

It is impossible to do justice to this suggestive work in a short notice, and we are well aware that the above is only a hasty and somewhat arbitrary selection of a few of the topics treated. The views of matter and ether, in particular, might well have a notice of their own; so might the chapter on psychophysical interaction, which is almost a model of philosophical discussion. In this last the theory is stated that the initial impulse required to liberate the energy of the muscular system comes ultimately from "external sources," e.g. when the sight of some object moves us to pursue it, from the ethereal vibrations which we apprehend as light. But for the author's defence (in many ways successful) against the obvious objections to this view, we must refer to the book itself.

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#### OUR BOOK SHELF.

*Index of Spectra. (Appendix O.)* By W. Marshall Watts, D.Sc. (Lond). Pp. 40. (Manchester: Abel Heywood and Son, 1904.) Price 3s.

THIS is the latest addition to the very useful series of appendices which Dr. Marshall Watts has given to his well-known "Index of Spectra." In it he has brought together the arc spectrum of molybdenum by Hasselberg, the spark spectra of calcium, scandium, indium, beryllium, lithium, thallium, antimony, and arsenic, by Exner and Haschek; of calcium, lithium, thallium, and antimony, by Eder and Valenta; of radium, by Runge and Precht; and the oxy-hydrogen flame spectra of lithium, potassium, rubidium, and caesium, by Ramage. Hasselberg's comprehensive record of the arc lines of molybdenum takes up about half the pages of the appendix. In the cases of metals investigated both by Exner and Haschek, and Eder and Valenta, the records are compared in parallel columns. The oscillation frequencies corresponding to the wave-lengths of all the lines given have been reduced by the compiler.

*La Matière, l'Éther et les Forces physiques.* By Lucien Mottez. Pp. 236. (Paris: Gauthier Villars, 1904.) Price 4 francs.

THE time is fast coming when the qualification which will play the most important part in determining a man's reputation as a physicist will be that he shall abstain from writing books on the philosophy of ether, matter, and the universe. The present book discourses pleasantly about gravitation, heat, electricity and magnetism, polarisation of light, chemical action, and such like matters. It is hardly the kind of book to which a beginner would turn to get his first lessons on physics, as the style is too discursive, and it contains little but what an average physicist either knows or has probably thought of already; and yet we can only say about books of this kind, "still they come." Who reads them?

*The Uses and Wonders of Plant-hairs.* By Kate E. Styan. Pp. iv+65; with plates. (London: Bemrose and Sons, Ltd.) Price 1s.

THE nature and purpose of plant-hairs will have occurred to many teachers as a favourable subject for a course of nature-study. The presence or absence of hairs in allied plants, even in the same plant when growing under different conditions, their position and form, their mechanism and use, afford plenty of opportunity for consideration and deduction. The book offers a fair *résumé* of facts, but it is not obvious that the writer is recording personal observations, and the appendix of illustrations loses some of its value as no allusion is made to it in the text.

#### LETTER TO THE EDITOR.

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##### The Planet Fortuna.

ALTHOUGH NATURE is scarcely the proper place for a disquisition on a Latin quotation, perhaps you will admit of a further correction of "W. T.'s" correction (p. 461) of the lines quoted by "W. E. P." Numen is, I believe, never used except in the sense of *good* luck, being derived from *nuo*, and signifying the nodding approval of the gods; hence "Nullum numen habes, si sit prudentia," would mean just the opposite to the obvious sense of the passage. The best editions give, in both the satires where the line occurs, "Nullum numen abest," and this makes sense. Except for this word, "W. T.'s" version is correct.

SPENCER PICKERING.