

part been omitted; the chapters, for example, headed "End and Theory" and "Classification of Psychic Processes" have disappeared. On the other hand, far more space is devoted to an elaborate and detailed description of apparatus, especially in connexion with the psychology of sensation. Chapters have been added dealing with the measurement of certainty in evidence, of suggestibility, of comprehension, of reasoning, of the speed of carrying out an instruction or of inhibiting an action already begun. There is also a new chapter on statistical methods, the calculation of the mean, the mean variation, the probable error, and the correlation coefficient.

In this country such a book is of more value to the advanced than to the elementary student of the subject. He will find pieces of apparatus described and illustrated (*e.g.* Polack's photometer; Michotte's tachistoscope, Toulouse and Piéron's reflexometer) which are almost or quite unknown in our own laboratories. But he will find no mention of the psycho-physical methods, upon a mastery and appreciation of which we believe successful experiment in psychology so materially to depend. Nor will he realise the enormous importance of introspection in experimental psychology. The book will rather leave him under the impression that numerical data, not obtained by any precise method,—merely numerical data,—constitute the goal of the subject. He will be led to believe that the meaning of individual differences in these numerical data may be ascertained not by a study of the introspective records of the subjects, but by the fancied interpretations of the experimenter. The student will thus go far astray.

ANONYMOUS.

*Prolegomena zur Naturphilosophie.* Von HERMANN GRAF KREYERLING. München, 1910. J. F. Lehmann's Verlag. Pp. xi, 159.

In the six lectures which form the content of this remarkably fresh and fascinating volume, the writer develops a theory of knowledge based on the Kantian, along the lines of Bergson's theory of Life. His initial postulate is the reality of all phenomena. In view of this the function of critical philosophy is limited to determining the place within phenomenal reality occupied by the process of knowing. The *a priori* principles to which phenomena are subordinate (if the distinction is worth keeping up) are grounded on the knowing subject, not, however, as the unknown ego of appearance, but as the phenomenon man, for whom, as appearance, a place must be found in the whole system of appearances. All priority, especially of a constitutive nature, is thus denied to thought, which becomes merely a given phenomenon; and, as the author says, "Kein Gegebenes ist als solches denknotwendig" (p. 33). We can test the laws of thought, therefore, only in one way—*viz.*, experimentally [the writer identifies the term "experimentell" with the Kantian "transzendental"], and hence, from the cosmic standpoint, the cogency of a logical law is neither more nor less than that of a physical experiment. It is on this very ground that the author bases the correspondence of thought with things. We reach valid or empirically real results not by the capricious application of thought, but by the use of logically permissible generalisations . . . "so folgt [hieraus] mit absoluter Notwendigkeit, dass die Grundnormen des logisch-mathematischen Denkens für alle Naturvorgänge gültig sind" (pp. 42-43).

The interpretation given to the universal validity thus established furnishes the solution to the problem of knowledge, and raises the whole question of law in its acutest form. In the first place, a methodological

analysis results in the discovery that scientific knowledge does not lead to, but away from, the given, and that scientific theories are neither true nor false, but are merely instruments of our knowledge, and, as such, either well or ill adapted to their ends. Hence the idea of scientific truth presupposes the idea of "a knowing or would-be-knowing spirit". "Der Erkenntnistrieb ist also nicht durch die Wissenschaft, sondern umgekehrt die Wissenschaft durch den Erkenntnistrieb zu definieren" (p. 58). But neither can this "impulse to know" be taken as a final presupposition; for it implies a need, which is only a determination of one who needs. We are thus in the last resort confronted with "das Dasein eines lebendigen Menschen," and the conclusion is that "die Erkenntniskritik ist wirklich Biologie" (p. 76).

In the last lecture but one is developed the writer's view as to Life. Although the law-creating thought is admitted to be itself subject to law and the forms of life or *Lebenserscheinungen* are on the same level as other natural events, Life itself is neither appearance nor law. It is "the sole transcendent reality"—"neither being nor becoming, force nor matter, variety nor unity, neither a function nor a limit, a differential nor an integral" (pp. 118-119). It is something in me which "selber unfassbar, alle Fassbarkeiten bedingt" (p. 119). The principle of Life is thus substituted for the transcendental principles of the Kantian philosophy, which in their turn are reduced to an empirical level.

The value of this transcendental determination of the Life-principle is again critical. On the one hand, it limits the sphere of knowledge as defined by law, at once authenticating and restricting the claims of the latter. Science has to do with only two orders of the real—given appearances, and their laws or relations. Appearances as given we have seen to be assumed from the outset as real. In what sense can the same be said of relations, which are not given, but which are revealed in scientific theory—the instrument of Life? The answer is: there are no laws apart from thought; but as soon as thought supervenes, law becomes unconditionally valid, because nature has the peculiarity of so expressing itself in spirit. In a word, laws are just the mode in which nature appears to thought; only this must be understood in an objective, not in a subjective sense: "der Verstand schreibt der Natur eben nicht seine, sondern ihre Gesetze vor" (p. 97). On the other hand, the theory before us opens the door to Metaphysics—conceived not as a reasoned system of scientific knowledge, or indeed as capable of reasoned statement, and so communicable, but as a direct and mystical "expression of Life," analogous in its immediacy to bodily beauty, art and religious feeling.

One word of criticism must be offered on the presentation of this singularly subtle and attractive theory of knowledge. The writer undoubtedly strains the unity of his view with that of Kant. It is true that where he substitutes Life for other transcendental principles, beneath the transposition there appear in analogies the familiar features of the Critical Philosophy. There is a corresponding demarcation, e.g., against Psychologism, against Dogmatism (in the form of Idealistic metaphysics), and against the radical empiricism of Mach and Avenarius. But the writer greatly underestimates the extent of the divergence from Kant which his change in the principles of knowledge brings with it. He does not hesitate to ally with Kant's own position his assertion: "Der Satz: meine Welt ist Vorstellung, durch die Erkenntnisformen gestaltet und bedingt, bedeutet also eine besondere Fassung der allgemeinen Wahrheit, dass die Welt jedes Organismus sein Milieu ist, dessen spezifischer Charakter seinerseits von der spezifischen Organisation des fraglichen Lebewesens abhängt, und aus diesem Grunde nicht das Ansichsein der

Dinge, sondern deren Inbetrachtkommen für dem Organismus zum Ausdruck bringt" (p. 64). 'Surely the *physiological* interpretation of the limitations of knowledge is quite as foreign not only to the letter, but to the spirit of Kant's view as is the physiological interpretation of knowledge itself.

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*Philosophische Bibliothek*, Bd. 67: *Kirchner's Wörterbuch der Philosophischen Grundbegriffe*. 6 Auflage. Dritte Neubearbeitung. Ed. von Dr. CARL MICHAELIS. Leipzig: Verlag von Felix Meiner, 1911. Pp. viii, 1124.

One of the outstanding characteristics of recent advance in philosophical inquiry has been the great development in what may be called sub-philosophical studies and the cross fertilisation of philosophy from these. The movement towards cosmopolitanism has been scarcely less conspicuous. In regard to lines of approach other than his own to the secret of philosophy none need nowadays feel ashamed in avowing that he needs a guide-book or directory. He is not necessarily a layman in philosophy who is puzzled with a phrase in which *mutation* means something other than change, or is troubled what to make of an allusive utterance about *entropy* or *heterogony*. Any one but a native-born Teuton may be glad to have a gloss on so recurrent a word as *Einführung*, while of purely technical words, *akatalepsia*, *holomericism*, and what not, we all remain innocent so long as with decency we may. Such is the justification for a wordbook of a class of which Kirchner's is from its moderate price and workmanlike character a favourable specimen, and the explanation of the necessity under which it is to expand in size and come more and more in contact with the more modern things. Time was when it was best known for the guidance it afforded to the terminology of Kant and the attention it devoted to the technique of formal logic. Under the editing of Dr. Michaelis it has more than doubled in size, the increase being for the most part in the domain of psychological and biological terminology, and it may now be said to do for Wundt specially, and writers whose interest takes a kindred direction, what earlier editions did so adequately for Kant.

Next in importance, perhaps, to the two sets of articles noted, with which on the whole the book stands or falls, come certain sections, belonging to the older plan, on philosophico- or theologico-ethical subjects. If these sometimes surprise by a quaint collocation such as 'Origen and Schelling on the other hand hold,' and sometimes disappoint by lacunae, as e.g. in an item on Predeterminism where Schelling is not referred to, they are generally suggestive and adequate. Who could be ungrateful for a luminous note on symbolic anthropomorphism, or for a reminder of the origin of the word dualism in theological controversy?

It is on two points that the editor and his coadjutors are most open to criticism. They attempt to give the purchaser more than his money's worth, with the result that on Political Economy, for instance, there should either be nothing or very much more, while the article on Anthropology is a curious farrago and none of the specific topics belonging to that science, totemism e.g., and magic, can be said to be treated adequately. And their conception of what is required in the matter of bringing up to date the articles where the subject-matter is static and matter of history, but where knowledge is nevertheless in rapid movement, seems to us unsound. Many of the sections on the older philosophy seem to need looking to. 'Plato attached to the universal a separate