various points from Labrador to Noank, Conn., and explored many geological horizons in Canada, the Maritime provinces, New England, New York and the far west. His published writings, though less numerous than those of some of his contemporaries, are many and important; they cover a wide field in the Invertebrata, both fossil and recent, and in some cases represent pioneer work in the group studied.

The titles of a few of the more important of his publications may be noted: Observations on Polyzoa (1866–68); On the parallelism between the different stages of life in the individual and those of the entire group of the molluscous order Tetrabranchiata (1867); Fossil cephalopods of the Museum of Comparative Zoology. Embryology (1867); Revision of the North American Porifera (1875–77); The genesis of the Tertiary species of *Planorbis* at Steinheim (1880); Genera of fossil cephalopods (1883–84); Larval theory of the origin of cellular tissue (1884–85); Genesis of the Arietidæ (1889); Bioplastology and the related branches of biologic research (1893); Phylogeny of an acquired characteristic (1894); Cephalopoda (1900).

From the beginning Professor Hyatt's researches were very largely devoted to evolutionary questions, and to the special study of fossil cephalopods; at the time of his death he was one of the foremost authorities upon the fossil Cephalopoda. The true value of his work upon this group must be left for the future; memoirs such as the Genera of fossil cephalopods (1883–84), and the chapter on the Cephalopoda (1900) contributed to the English issue of Zittel's 'Palæontology' cannot be properly estimated by the present generation; they require prolonged and detailed study founded upon large series of specimens. His theory of parallelism based on acceleration and retardation, and his discoveries concerning the laws of development, growth and decline were advocated with persistence and vigor; and while his treatment is not always lucid, he is to be credited as the originator of a distinct school, a school devoted to exact methods of research. The growth of this so-called Hyatt school, never of greater importance than at the time of his death, was a source of sincere gratification to him.

Samuel Henshaw.

SCIENTIFIC BOOKS.

Dictionary of Philosophy and Psychology. Written by many hands and edited by James Mark Baldwin, Ph.D., with the cooperation and assistance of an international board of consulting editors. In three volumes, with illustrations and extensive bibliographies. Vol. I. New York, The Macmillan Company. 1901.

In considering an enterprise of such magnitude as this dictionary offered by Professor Baldwin, the reviewer should keep in mind several important points. He should remember the purpose which guided the editor in his work, its value to those for whom it is especially intended, and the great difficulties of the undertaking. He should not measure it by ideals which the editor never aimed to realize and which it was not necessary for him to realize under the circumstances. Two purposes are combined in the work, Professor Baldwin tells us—'first, that of doing something for the thinking of the time in the way of definition, statement and terminology; and second, that of serving the cause of education in the subjects treated.' The task, therefore, is 'to understand the meanings which our terms have, and to render them by clear definitions; and to interpret the movements of thought through which the meanings thus determined have arisen, with a view to discovering what is really vital in the development of thought and term in one.' The other part of the problem is pedagogical and carries with it the duty 'to state formulated and well-defined results rather than to present discussions.' The reader, therefore, who expects to find nothing but original articles written for experts

and by experts, a work, for example, like Schönberg's 'Handbuch der politischen Oekonomie' or Conrad's 'Handwörterbuch der Staatswissenschaften,' will be disappointed. There are, indeed, 'special' articles on certain topics, and these are of 'encyclopedic character,' but they are in the minority. The Dictionary is meant primarily for the student, not for 'the practised man of research'—a fact which should be kept constantly in view. This will also help to explain the great scope of the enterprise, as set forth in the subtitle: 'including many of the principal conceptions of ethics, logic, æsthetics, philosophy of religion, mental pathology, anthropology, biology, neurology, physiology, economics, political and social philosophy, philology, physical science and education.' The editor justifies himself for attempting to cover such an enormous field with the statement that 'the introduction to a large subject—philosophy, indeed, is the largest subject—must needs include various details of knowledge of other branches of science and information, and of methods, preliminary to its proper task.' The wide inclusion of science receives further justification from the editor's conception of philosophy and of its relation to science. Philosophy is for him 'the attempt to reach statements, in whatever form, about mind and nature, about the universe of things, most widely conceived, which serve to supplement and unify the results of science and criticism.' "It is," he says, "one of the safest sayings of philosophy, at the close of the outgoing century, that whatever we may become to end with, we must be naturalists to begin with—men furnished with the breastplate of natural knowledge. We must know the methods as well as the results of science; we must know the limitations of experiment, the theory of probability, the scientific modes of weighing evidence and treating cases. Lack of these things is the weakness of many a contemporary writer on philosophy. Such a one criticises a science which he does not understand, and fails to see the significance of the inroads science is making into the territory which has so long seemed to be exempt. Note the application of biological principles, in however modified form, to psychological facts; the treatment of moral phenomena by statistical methods; and the gradual retreat of the notion of purpose before the naturalist, with the revised conception of teleology which this makes necessary." The prominent place given to psychology is another necessary consequence of the editor's standpoint, and will receive the approval of all who agree with him as to the fundamental importance of this discipline for science on the one hand, and philosophy on the other. "In biology, in sociology, in anthropology, in ethics, in economics, in law, even in physics," he declares, "the demand is for sound psychology; and the criticism that is making itself felt is psychological criticism. How could it be otherwise when once it is recognized that science is the work of mind, and that the explaining principles by which any science advances beyond the mere cataloguing of facts are abstract conceptions made by processes of thought?" All this is very good, and most modern thinkers will have no difficulty in accepting it. The philosopher cannot ignore science, nor can either he or the scientist do without psychology.

Taking the Dictionary, or rather the first volume of it, as a whole, and judging it by what it sets out to do, we cannot withhold from it our full measure of praise. It is beyond question the best production of its kind in the field, and will doubtless prove a valuable aid to those for whom it was made; indeed, there are few, if any, interested in the general philosophical branches who will not find it a useful vade mecum. Professor Baldwin and his collaborators certainly deserve the gratitude of all students and teachers of philosophy and psychology in the English-speaking world for the arduous task which they have so successfully performed.

And now a word or two with respect to particular points. One of the objects of the Dictionary is to do something in the way of definition and terminology. This is, of course, a highly commendable aim. But there seems to us to be some danger of *over*doing the thing, of attempting to define what cannot be defined, or at any rate cannot be defined satisfactorily within the narrow limits of a sentence

or two. Some of the older American philosophical text-books were in the habit of defining or at least trying to define concepts like consciousness, mind, feeling, etc., and many persons who have used these books still remember the thought-destroying effect produced by their study. Perhaps these experiences have made us too sceptical with regard to certain definitions, but it does not seem that we are helped very much by statements like the following: "Activity (mental). If and in so far as the intrinsic nature of conscious process involves tendency towards a Terminus (q. v.), it is active process, and is said to have activity." "Admiration. Feeling as going out in active approval." "Attention. The mind at work or beginning to work upon its object." "Being. The most general predicate possible and to be affirmed of anything whatever." "Consciousness. The distinctive character of whatever may be called mental life. It is the point of division between mind and not mind." "Determination. The cooperation of all the factors which adequately condition and issue in a mental End-state (q. v.)." "Feeling. Consciousness as experiencing modifications abstracted from (1) the determination of objects, and (2) the determination of action." Perhaps the best thing we can do in many cases is to confess our inability to give satisfactory definitions, as the German professor did, who, when told by one of his students in an examination that he did not know what an animal was, frankly declared that neither did he. So far as the terminology is concerned it is to be hoped that the Dictionary will bring about some uniformity of usage. Its recommendations are, as a rule, very sensible, and there is no reason why they should not be adopted.

With respect to the value of the different articles there will, of course, be difference of opinion. Most of them, however, serve their purpose well. Among those pertaining to philosophy and closely allied subjects the following do not seem to receive the treatment which their importance demands: Analogies of Experience; Association of Ideas; Conscience; Cause Theory (perhaps the article on Parallelism will supply the deficiency); Deism; Dialectic; Dogmatism (Kant's meaning of the term is not clearly brought out); Education; Empirio-criticism; Free Will (and determinism); Innate Ideas (Leibniz's view should be mentioned here); Instruction. The following are among the most helpful and suggestive: Cause; Cause and Effect; Change; Epistemology; Experience; Greek Terminology; Hegel's Terminology; Kant's Terminology (unfortunately this does not include Kant's ethical and æsthetic terminology); Judgment; Latin and Scholastic Terminology. The articles on psychology and æsthetics are generally very good.

The number of subjects discussed in the first volume is quite large, and the Dictionary seems to be very complete in this respect. It would, of course, be impossible to give each possible topic a separate place in the book; many things will have to be considered together under general heads, and the index to the entire work, which is to appear at the end of the second volume, will most likely help the student in his search for certain terms. Perhaps some of the following subjects, which I have tried to find, may turn up in this way: Animal Spirits; Astrology; Corpuscular Theory; Duty (and inclination); Dynamism; Dysteleology (a term coined by Hæckel); Eduction (a term used by some English logicians); Egoism (in the sense of solipsism); Energetik (the term used by Ostwald); Ethelism; Ethical Culture Movement; Euhemerism; Evaluation; Idiopathic (as contrasted with sympathetic, a term frequently used by the Germans—*e. g.*, by Paulsen); Illusionism; Individualism (ethical. Reference might here be made to the article on Anarchism); Intelligible and Empirical Character. There are two articles which might easily be brought under the same head: Ætiology and Etiology. In the article on Determinism we are referred to an article on Free Will Controversies. There is no such article. There ought to be a reference under Empirio-criticism to the article on Introjection, which gives one a much better idea of Avenarius's system than the first article.

The biographical part of the work is, in my opinion, capable of great improvement. Many important names are left out, many unimpor-

tant ones given. Every one cannot be mentioned, of course, but it would be a distinct gain if names like Alanus ab Insulis, Antisthenes, Aristarchus of Samos (he is, it is true, mentioned under the Copernican Theory), Beda Venerabilis, Bolingbroke, Buridan, Calderwood, Cardanus, Digby, Euler, Fiske, Galileo, Gaunilo, Gerbert, Gizycki, Glogau, Guyau, Hamann, Hegesias, Herschel, Wilhelm von Humboldt, Kepler, Laas, Lamennais, Lanfranc, Laplace, to call attention to but a few prominent omissions, could take the place of: Abbadie, Abdalatif, Achenwall, Johann Alanus, some of the Alexanders, Allamand, Arnott, Atwater, Beaseley, the two Hodges and others comparatively unimportant. It is a pity, too, that no biographies are given of living thinkers, say of men like Baumann, Brentano, Dühring, Eucken, Kuno Fischer, Fouillée, Hartmann, Höffding, Jodl, to say nothing of English and American writers of note; but perhaps that would have increased the size of the work beyond all reasonable expectations.

The bibliographies are unequal in value. The psychological bibliographies are usually excellent, including, as they do, the best monographs in the field. The literature on æsthetics is also good. The philosophical, logical, ethical, epistemological and educational lists of references, cannot as a rule compare with the others; some of them are quite meager, often ignoring the best recent literature. It is one of the most valuable functions of a work like the Dictionary to guide the student in his reading and to put him in touch with the best work done everywhere. It would be an advantage if the third volume of the Dictionary could give not only the *names* of books, but critical comments on some of them.

In conclusion I should like to call attention to a few minor details. There should be some uniformity (1) in German spelling, (2) in the use of the English possessive, and (3) in French titles. Sometimes the old style of German spelling is used, sometimes the new. We get *Urteil* and *Urtheil, Funktion* and *Function, Defekt* and *Defect, Produkt* and *Product,* etc., etc. Sometimes the Dictionary uses the apostrophe followed by *s* in English possessives ending in *s,* sometimes it uses the apostrophe only. Thus we find St. Vitus's, Cornelius's, James's, St. Thomas's, Leibnitz's, and Descartes', Averroës', Leibnitz', and so on. In the French titles capitals are sometimes used and sometimes not. There are a few other cases in which we get differences in spelling. The Dictionary writes Kratylus and Kritias, but Crates, Carneades, Cleanthes. Quesnai and Quesnay occur, Frankfurt and Frankfort, Clement and Clemens, Renaissance and Renascence, spatial and spacial, and if I am not mistaken Occam and Okham.

The terms adoptionism and *Adoptionismus* are used instead of adoptianism and *Adoptianismus,* which are the more common forms. Clanberg should be Clauberg. Instead of *Agent* the Germans use the term *Agens* in the sense employed on page 25. The usual German equivalent for common sense in the meaning given on page 200 is *gesunder* or *gemeiner Menschenverstand. Askese* is more common than *Asceticismus.* The counter-reformation is *Gegen-reformation* in German. On page 92 Höffding is referred to as an authority on mediæval philosophy. Schmidt's 'Ethik der alten Griechen' is spoken of as a history of ethics on page 344; it is a history of Greek morality and ideals rather than of Greek systems. The title of Ziegler's book is: 'Die Ethik der Griechen und Römer.' On page 67 the term patristic fathers is used. On page 500 a passage from Munro's translation of Lucretius is given without credit. On page 5 a translator's name is given as Filkin, on page 189 as Falkin, on page 557 as Felkin. Homoousios (p. 67) should be homoi-ousios. On page 596, first column, eighth line from the bottom, the word *to* should be placed between *that* and *phenomena.*

Typographical errors are: *Nature* for *Natur* (p. 5); 1794 for 794 (18); peritheral for peripheral (28); Gaston for Galton (46); base for bare (61); Bohme for Böhme (124); idiomotor for ideo-motor (217); Adeckes for Adickes (246); Elsenhaus for Elsenhans (216); Seipsis for Scepsis (320); *Raumvorstellungen* for *Raumvorstellung* (364); 21 for 214 (521); Frauenstadt for Frauenstädt (537); instinct for institut (579); Mansell for Man-

sel (347); Micklejohn for Meiklejohn (285); Laud for Land (21); and a few others even more insignificant than the above.

Volume II. will contain the remainder of the text, from Le to Z, Addenda, full indices of Greek, Latin, German, French, and Italian terms, while volume III. will be devoted exclusively to the general bibliographies.

The Macmillan Company deserve great credit for making such a publication possible and for the manner in which they have performed their part of the work. FRANK THILLY.

UNIVERSITY OF MISSOURI.

Report on a Botanical Survey of the Dismal Swamp Region. By THOMAS H. KEARNEY. Contributions from the U. S. National Herbarium, VI.: 6. Washington, 1901. 8vo. Pp. 263, 12 plates, 39 figures and 2 maps.

The account of the Dismal Swamp vegetation here presented is both a valuable and a thoroughly readable one. The subject is handled from a number of viewpoints in such a way that the reader obtains a well-rounded conception of this particular vegetative covering and of the interrelations of its constituents. The author is especially to be commended for his careful inquiry into the causes which produce the characteristic modifications of the various vegetation forms, and for the histological investigation of certain species, a study which is altogether too rare as yet in ecological research.

Under 'Climate' the author discusses the usual physical factors, temperature, sunshine, humidity, precipitation and wind, though the data unfortunately could not be secured for the Swamp itself, but only for the neighboring meteorological stations, Norfolk and Cape Henry. The prominent physiographic features of the region, to which correspond, of course, certain plant formations, are (1) the beach and the dunes, (2) the salt marsh, (3) the plain and (4) the swamps. A very important discussion of the soils of these areas is contributed to this portion by Mr. F. D. Gardner, of the Division of Soils.

In the treatment of the vegetative covering of the region, the author recognizes a maritime and an inland group of formations. The former comprises the saltmarsh formation and the sand-strand formations. Under the first are arranged a number of associations, *Spartina stricta* association, *Typha* association, *Juncus* association, which are, in fact, alternating areas of the formation, in which a certain facies or principal species is controlling. Little attention is given to the relative importance of the species constituting the formation, or to their sequence in time. The most important physical conditions which cause modification in saltmarsh plants are partial submersion at high tide, a soft yielding substratum and an excess of sodium chloride in soil and water. The resulting modifications are largely concerned with the reduction of the water loss, as is typical of halophytes, by thickening the cuticle and the epidermal walls, by the development of a dense hairy covering, the sinking of the stomata, the conduplication of the leaf, or its partial or complete reduction, the development of succulency, the presence of a considerable quantity of salts in the cell sap, and the development of palisade tissue. The value of the sheathing bases of the old leaves in preventing the access of salt water must be regarded as somewhat doubtful. The consideration of the sand-strand vegetation is clear and interesting. The beach and outer dunes are characterized chiefly by *Ammophila arenaria, Uniola paniculata, Iva imbricata, Panicum amarum minus, Cakile edentula* and *Salsola kali.* The vegetation of the middle dunes is much less open in nature. The most characteristic feature is, perhaps, the dense, often pure, thickets of *Myrica carolinensis.* Other thickets are constituted by *Prunus angustifolia, P. serotina, Salix fluviatilis* and *Cephalanthus occidentalis.* The inner dunes are wooded for the most part with *Pinus tæda,* but a number of deciduous trees and shrubs, *Quercus, Diospyrus, Sassafras* and *Juniperus,* occur here also. An excellent analysis of the effect of the mechanical action of the wind, and of the effect of excessive transpiration follows the floristic discussion.

The non-hygrophile inland formations are (1) forest formations, embracing the mixed forest and the pine barrens, (2) cleared-land formations, non-cultural and cultural, (3)