

the recognition of differences, and objects to Hegel's calling his method dialectical, because that method involves the recognition of identity as well. Dr. Baillie is true to Hegel's thought; he is not true here to Hegel's terminology.

The Notes on "Contradiction" and "Development," appended to this chapter, are very clever pieces of exposition and argument, although one may not be willing to accept the statements in all points. The chapter on the "Relation of Logic to Nature" seems to solve a difficulty of long standing in the comprehension of Hegel's system.

The last chapter, "Criticism," shows that the expositor is also an able critic. Into the various objections he makes we cannot enter here. Some of them are without doubt well taken. Others seem to get their plausibility from overstraining isolated expressions. But these latter are not important, and the critic recognises this when he says that they do not "seriously damage the real value of Hegel's general position, or of the Logic in particular" (p. 363). "We shall find," if we look at the subject in the fuller light of Hegel's larger meaning, "that most of the objections urged against it above cease to hold, while at the same time much of his System as it stands can be accepted as tenable" (pp. 367, 368).

The book will not be altogether easy reading to a novice in the study of Hegel's philosophy; but it will be easier reading than Hegel's own works, as most expositions of Hegel have not proved to be. Like all really helpful and useful commentaries, it must be read along with the works commented on, and thus read it will prove to be not a keeping but a disclosing of "the Secret of Hegel". And even to one who has not had time or inclination to read the *Obscure Philosopher par excellence* of modern times, a careful study of this *General Introduction to Hegel's System* will show the nature and importance of Hegel's problem, the spirit in which he attacked it, and the partial success of his solution. Dr. Baillie's work cannot be too highly praised.

EVANDER BRADLEY MCGILVARY.

Mind in Evolution. By L. T. HOBHOUSE. London: Macmillan, 1901.

NOTWITHSTANDING some real divergence of opinion, and a much greater amount of apparent divergence due to differences in the usage of terms, there is a growing consensus of opinion among students of comparative psychology as to the main trend of mental development in animals and man. This is in part the outcome of a more careful, cautious and critical treatment of the recorded evidence, and in part the result of the application of the experimental method together with the appreciation of the fact that, if it is to afford data from which valid conclusions may be drawn, animal behaviour must be studied in the spirit of serious investigation.

Those who enter on the discussion of the subject in this spirit have to trace, so far as the conditions permit, a continuous process of mental evolution, and have also to distinguish and name the successive stadia through which this evolution passes. By some emphasis will be laid on the continuity of the several stages; by others on their differentiation. And the incidence of this emphasis will be reflected in the use of technical terms. The germinal and embryonic stages of abstraction and generalisation, for example, may be reasonably inferred from the behaviour of animals low down in the scale of mental progress. It is not unnatural therefore that, where continuity of process is in the focus of thought, the terms "generalisation" and "abstraction" should be employed with the widest possible range of significance so as to comprise both the embryonic and the fully developed phases along a specific line of psychogenesis. But on the other hand it is not unnatural that, when the differentiation of the stages is in the focus of thought, these terms should be severally restricted to the highest distinguishable phase of development—that at which the process in question reaches maturity. If the progress of thought depends now upon the perception of similarity amid diversities of manifestation, and now upon the distinction of delicate shades of difference, it is inevitable that the preponderance of the one or the other tendency should leave its impress on the language in which that thought is expressed. And where a writer is addressing not only the inner circle of experts but a wider audience of cultured folk, he has to consider the commonly accepted implications of the words he uses and, bearing in mind the fact that even the cultured reader will be more under the sway of these common implications than of the author's most careful definitions, he has to select that usage which will offer the least resistance to the general acceptance of his meaning, and best subserve further progress.

Mr. L. T. Hobhouse in his valuable work on *Mind in Evolution* distinguishes five stages of correlation in the course of what he terms "Orthogenic Evolution". This he defines as evolution "upwards," assuming at the outset, and contending throughout the work, that it is identical with the evolution of mind or of the conditions which make mind possible. "Doliogenic evolution," as contrasted with orthogenic, is "the growth of any other qualities whatever that assist survival". It must be remembered that Eimer (*Verh. der Deutsch. Zool. Gesell.*, 1895) uses the terms "orthogenic" and "orthogenesis" for evolution through use-inheritance and the organic transmission of acquired characters, and therefore on the one hand with implications which Mr. Hobhouse's usage does not carry and on the other without the implications which his definition suggests. Dealing broadly with the adaptation of human and animal action to the requirements of life and growth, and using the term "adaptation" so as to include both racial adaptation, by means of natural selection or otherwise (to which it has been suggested that the term should be restricted),

and individual accommodation through modification of structure in the course of the life and growth of the organism, he finds that it involves "a certain correlation, to put it in the most general terms possible, between the experiences and the actions of the individual and of the race". The word "correlation" being thus used in a comprehensive sense, neither in its technical application in psychology nor with its biological implication, five stages are distinguished. The first, which stands in a category by itself, is named the *Pre-intelligent Stage* where response to stimulus is the outcome of inherited structure, where the correlation is not achieved within the experience of any individual, and where adaptation is confined within narrow limits. This stage, in Mr. Hobhouse's interpretation, only falls within the scope of orthogenic evolution, as defined, in so far as the conditions which make mind possible are then established. Instinctive reactions are its culminating products. Their nature and character, the co-operation, in their higher developments, of internal disposition—some form of craving or *stimmung*—with external stimuli to reflex action, and the criteria by which they may be differentiated from intelligent actions, are well brought out in the chapter on *Instinct* to which almost the only exception that can be taken is that Mr. Hobhouse in one passage seems to raise it to the power of a quasi-metaphysical faculty, when he says that the business of instinct is precisely to shape adaptable reflexes aright.

In placing instinct entirely in a stage termed Pre-intelligent, it would seem, however, that the co-operation of intelligence in the genesis of some instincts is excluded. It is true that Mr. Hobhouse clearly notes the practical difficulty of disentangling the factors in some forms of behaviour. "Intelligence," he says, "arises within the sphere of instinct; indeed, we can draw no sharp and certain line between them [as they occur] in nature. Yet in idea they are quite distinct. In so far as an act is instinctive, it is not intelligent, and conversely." But this does not preclude the origin of some instincts through lapsed intelligence. As used by Lewes and Romanes, the phrase "lapsed intelligence" carried with it a Lamarckian implication based on the direct inheritance of the intelligent modification as an instinctive congenital character. But it has recently been shown that (on the hypothesis that Prof. Mark Baldwin has termed Organic Selection) congenital instincts may arise along the same lines that have been marked out by persistent accommodation to oft-recurring circumstances through the exercise of intelligence; so that the origin of some instincts through "lapsed intelligence" may now be accepted without the Lamarckian implication of the inheritance of acquired characters.

Still, broadly considered, it remains true that within the sphere of instinct, but not directly from instinct, intelligence is developed, and that its development opens out new lines of progress. In the second of the two main categories, which Mr. Hobhouse distinguishes, the correlation is based on individual experience.

Under this head fall four stages of correlation: (1) that of unconscious readjustment; (2) that of concrete experience and the practical judgment; (3) that of conceptual thinking and will; and (4) that of rational system. In common with Prof. Wundt and Dr. Stout among psychologists, and with such students of animal life as Dr. Thorndike and Mr. Kinnaman, the author reaches the conclusion (to which we believe both Romanes and St. George Mivart, notwithstanding wide divergence of expression, would have subscribed) that "the highest animals have as much capacity for dealing with the practical exigencies of their surroundings as can be attained by an intelligence limited in its scope to the concrete and the practical". No doubt there may be some, perhaps much, difference of opinion as to what is psychologically involved in this limitation to the concrete and the practical as distinguished from the abstract and the intellectual. But quite apart from any discussion as to the psychological status of the higher animals the difference between what Dr. Stout calls the perceptual and the conceptual planes of mental development is so well marked and so important as to justify their being placed in separate categories. We should therefore advocate three, instead of two, main divisions: I. The instinctive; II. The intelligent or perceptual; and III. the rational, intellectual or conceptual. Of these the second would be subdivided by Mr. Hobhouse into (a) the stage of unconscious readjustment and (b) that of concrete experience and the practical judgment. Whether *unconscious* readjustment is a satisfactory designation for the modification of response to stimulus as a consequence of *the pleasure or pain* immediately resulting, is questionable; but the implication is that there is no consciousness of the purpose or end of the modification. The chick that avoids cinnabar caterpillars as the result of experience, Dahl's spider which ceased to spring upon flies soaked in turpentine, and Möbius's pike of the sore nose, afford simple examples of the genesis of elementary experience through the subconscious correlation of sensory data. But how difficult it is to describe such rudimentary cases of the development of a conscious situation without using phrases which overstep the limits of legitimate inference. Möbius's pike, after dashing itself for three months against a glass partition in the attempt to get at some minnows, became, we are told, "at last so persuaded of the danger of attacking them that, when the partition was removed, it left them quite unmolested".

The transition from this stage to the next rests on the growth of experience in clearness and comprehensiveness. "In the primitive experience, the feeling modifies the sensation which it follows. Let the consciousness be extended so that sensation and feeling may be apprehended together while yet remaining distinct, and the content sensation-giving-place-to-feeling comes into being. This is the germ of the higher stage." "Psychologically, the new departure which has taken place in this stage is that the related

term which in the previous stage merely influences action, is now brought explicitly into consciousness." "We may describe the increased complexity by describing this stage as the correlation of relations, the one set being perceptual, the other practical. Both are essentially concrete, that is to say, we deal in this stage not with the relation as such but with two or more related objects of experience." The only point upon which I am not clear in these and some other passages is the statement that the related term is brought explicitly into consciousness. So many passages, like the last above quoted, state with much emphasis that the relations are only implicit in the concrete experience as a whole, and that it is in this sense only that relations can be said to be perceived by animals, that when we are told that their behaviour is in many cases determined by the relation between itself and the end to be gained we may take it that the author's view is that the animal does not make explicit and focal to consciousness the relation as such between means to be employed and end to be attained, and that there is nothing of the nature of intentional correlation. If this justly expresses his opinion I am in complete agreement with the spirit of his interpretation and do not think that anything I have written conflicts in spirit with his own conclusions.

Mr. Hobhouse has not been content to rely on second-hand information concerning the behaviour of animals. He has conducted careful and well-devised experiments to test the mental capacity of dogs, cats; a seal, an elephant, and two monkeys, a Rhesus and a chimpanzee. Did space permit these latter might be profitably compared with those of Dr. Thorndike and Mr. Kinnaman. On the whole, making due allowance for the personal equation, the results of taking the monkey into the psychological laboratory are remarkably concordant. And Mr. Hobhouse would agree with Mr. Kinnaman's statement that: "In these experiments, as in Dr. Thorndike's, there appeared no case that could be interpreted as reasoning in the higher senses of that term". Animal behaviour, when submitted to serious investigation, is thus, so far as present inquiry has enabled us to form an opinion, restricted to the practical and the concrete, and is limited to what Dr. Stout calls the perceptual plane. In this general conclusion there is essential agreement. Differences of opinion very largely centre around the use of terms, and modes of stating the common interpretation.

Desirous of laying emphasis on the continuity of mental process Mr. Hobhouse, for example, discusses his stages of correlation in terms of the syllogism. The chick on the basis of yesterday's experience *infers* to-day that the cinnabar caterpillar will, if seized, be nasty, and is therefore to be avoided. "Inference is essentially one function, from the simplest case of the chick, up to the highest elaboration of experience by the human intellect." The first stage of intelligent correlation "is comparable to a syllogism in which

the conclusion only should be an explicit content of consciousness," "the premisses being represented by a certain combination of psychological forces from which the conclusion follows". In the second stage "the process of correlation is comparable to a syllogism in which minor premiss and conclusion are avowed, while the major premiss is suppressed," being "represented by the psychological effect of past experience, which makes the mind draw its inference". The third stage—that of Conceptual Thinking and Will—"is comparable with the completed syllogism with explicit major premiss; and comparing it with the preceding stage, we see that the pervading identity which was there the central feature of the inexplicit 'process' has now passed over into the recognised 'content,' leaving outside those general methods and assumptions of thought by which the universal and all other products of intelligence [intellect] are built up". Finally on the last stage—that of Rational System—we have "the apprehension of the principles and processes underlying thought—the process of thinking made conscious. This is the process implicit in all the preceding stages, and in bringing it into consciousness so that the whole of the 'thought process' now passes into one content, the reasoning of this stage is as a syllogism in which the assumption involved in syllogising should be taken into account."

How far this syllogistic treatment of the whole range of mental process from the little-differentiated embryo to the mature logical form is helpful, and how far it is likely to lead to misconceptions, must be a matter of opinion. Bearing in mind, as I have already said, the fact that even the cultured reader will be more under the sway of the commonly accepted implications of logical terms than of the author's most carefully guarded definitions, my opinion is that the danger of misconception outweighs the advantage due to unity of treatment. Logic as a normative science belongs especially to the last stage. It deals with the apprehension of the principles and processes underlying systematic thought and formulates ideal standards and tests of correct thinking. For logic, major premiss and conclusion, generalisation and inference, are correlative terms; each implies and is dependent on the other; without the other each, as such, is non-existent. For those to whom this conception has become part of their mental furniture, the statement that for Möbius's pike any sort of "conclusion" is an "explicit content of consciousness," the premisses being represented by "a certain combination of psychological forces from which the conclusion follows," involves an uncomfortable sense of nightmare. One has to reorganise one's conceptions on a new basis. And freely as one admits that an author may, within limits, frame his own definitions of the terms he employs, one may question whether he can reasonably expect his readers to remodel their thought to suit his convenience, or has cause for complaint if his real position is misunderstood.

But I would not take leave of Mr. Hobhouse in a spirit of disagreement with his work. It is a good honest and straightforward work, full of careful analysis and well-digested synthesis. It will well repay reading and re-reading; for there are many good points, well taken and well put. And, certain modes of statement apart concerning which there may be differences of opinion, its conclusions are in my judgment sound at the core.

C. LLOYD MORGAN.

Psychology Normal and Morbid. By CHARLES A. MERCIER.
Swan Sonnenschein & Co., 1901. Pp. 512. Price 15s.

OF the general aim of this book every psychologist will heartily approve. Dr. Mercier tells us that his purpose is to deal with normal psychological processes in the way that shall be most helpful to students of the abnormal, because "Insanity is no exception to the rule which requires a knowledge of the normal as an indispensable preliminary to a knowledge of the abnormal". He tells us also that "The reason why the contrary opinion has been maintained with such vigour, and the contrary practice so generally followed, has seemed to me to be the absence of any work in which normal psychological processes are dealt with from the point of view and for the purposes of the alienist". We may be allowed to question the sufficiency of this reason for the unsatisfactory state of the study of insanity in this country, and to believe that its causes are less simple and somewhat deeper lying and that a complete remedy will hardly be effected by the publication of this book, admirable though it is in design and in execution. There are those who believe that the only way by which improvement can be brought about is by some change of system that shall make it worth the while of a considerable number of medical men to become thorough students of psychology both normal and morbid, and that the most important step towards this end would be the institution of a diploma in psychiatry by some body of the highest academic standing, such as the University of London. The way in which such a diploma may be expected to effect this much-needed reform cannot be set forth here, and it must suffice to point to the very great improvement in the study of sanitation that has resulted of late years from the institution of the Diploma of Public Health.

This book gives us the mature reflexions of an able and independent thinker upon an immense range of subjects treated under the headings Sensation, Thought, Volition, Memory, Pleasure and Pain, Subject-consciousness. Although, as we have seen, it is designed to remedy the scanty psychology of the average alienist of this country, it may also be regarded as a symptom of the unsatisfactory state of psychological study in general. The present reviewer has heard it said by a very distinguished continental