

vantages and disadvantages of paraffin and celloidin as imbedding materials. Around these much controversy has raged. The authors conclude that, while very thin sections can without doubt be best obtained in celloidin, the greater difficulty of manipulation and the greater requisite dexterity will probably lead an inquirer who wishes to work out a structure quickly and easily to adopt paraffin. As paraffin and celloidin are the chief imbedding agents, each of these is fully treated in a separate chapter, each chapter being of about twenty pages.

The chapters on stains are particularly full, and every colouring medium appears to be included. The recipes for their composition are given with quantitative accuracy, and, in the general preface, Dr. Mayer raises a protest against the vagueness with which such concoctions are frequently quoted. In several cases the important matter of stain durability is suitably discussed. The synonyms of tar dyes are always given.

It may be that to many investigators the most useful chapters will be those which deal specifically with organs and tissues, while other students will perhaps find the chapters on invertebrates the most attractive. Fulness of treatment is as much in evidence in these specialised regions of applied microscopy as in the more general parts of the book. The chapter on embryology (33 pages), for example, covers the animal kingdom; nerves are treated in three chapters (54 pages); and, under the heading of Echinoderms, each of the main subgroups is separately described.

The work as a whole gives the impression of unvarying thoroughness and completeness. It should be a valuable and indispensable auxiliary in the library of every biological laboratory. An appendix, compiled while the book was in the press, brings the contents thoroughly up to date.

A. N. D.

DARWINISM AND PHILOSOPHY.

Dogmatism and Evolution: Studies in Modern Philosophy. By Prof. T. de Laguna and Dr. Grace A. de Laguna. Pp. v+259. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd., 1910.) Price 7s. 6d. net.

THE authors explain that the term "dogmatism" is here used to denote the body of logical assumptions which were generally made by thinkers of all schools (e.g. Berkeley and Hume, as well as Descartes and Leibniz) before the rise of theories of social and organic evolution. The first part of the work is devoted to the analysis and illustration of the dogmatic principles. The second part, entitled "Revolution and Reaction," deals with the opposition offered to the old dogmatism by the critical philosophy and absolute idealism. The third part, which is developed to greater length, deals with the pragmatist revolt.

From our naturalist's point of view we turn with most interest to what the authors have to say in regard to the Darwinian theory of evolution, and we are not disappointed. It is shown that while the idea of evolution first became effective in the realm of social science, it was conceived in an essentially

abstract fashion, without any adequate consideration of the factors which operated. "It was not until the work of Darwin in biology that there existed anything like a scientific theory of evolution, based on wide and intensive empirical study." But "the importance of Darwin's work did not lie simply in the fact that it provided an acceptable theory of the evolution of organic species." His success gave investigators in other fields confidence in their clue, and opened the way for a universal theory of evolution. Moreover, "the bridging of the gap between man and the lower orders meant a transformation of those sciences dealing with essentially human activities."

While psychology and ethics have developed in post-Darwinian days under the application of evolutionary methods, logic has until recently remained untouched. "Until the rise of pragmatism no thoroughgoing attempt was made to explain the fundamental notions of logic itself in the light of the selection hypothesis." "Pragmatism is the first whole-hearted attempt at an appreciation of the significance of Darwinism for logical theory." What the authors seek to show is that the attempt has only half succeeded;

"that conceptions and methods inherited from the dogmatic empiricism of the eighteenth century go far to vitiate the evolutionary empiricism of to-day; and that the critical revision of these inherited notions from an evolutionary standpoint will make of pragmatism a far less iconoclastic movement."

The student of organic evolution will be interested in the clear contrast which the authors make between the Darwinian and the Hegelian concepts of evolution. The course of organic evolution is not conceived by biologists as dialectic; it is not to be explained in terms of mere logical relationship; external circumstances, instead of being unessential, are determining factors. The later stage cannot be described as the necessary realisation of the earlier. "Had external circumstances been ever so little different, the succeeding stages of the process might have been profoundly different." Organic evolution cannot be properly described as the progressive unfolding of a reality potentially existent throughout. Applying the point of this contrast to rational thought, the authors maintain that on the Darwinian view, thought is regarded not as the end and determinant of organic development, but as a product and (more importantly) as a moment or factor in that development—"a factor whose existence and nature are throughout conditioned by the part it has to perform in organic life."

J. A. T.

GEOLOGY AND THE DOCTRINE OF DESCENT.

Abstammungstheorie mit Rücksicht auf Erdgeschichte. By Prof. H. Pohlig. Pp. 191. (Stuttgart: Gesellschaft "Neue Weltanschauung" and F. Lehmann, 1909.) Price 2 marks.

SCIENCE in England has been peculiarly fortunate in its popular exponents, especially on the biological side; the only regret is that they are so few. In Germany there is no lack in number, but it would be insincere to express unqualified admiration of the prevailing style. Most of us probably would prefer