

PREFACE.

THE present work is one concerning which a few words of prefatory notice may be deemed necessary. It aims at nothing more than to give the beginner in the study of Zoology or Botany a comprehensive view of the great life-fields which are seen to lie before him, from the standpoint of an observer in the common territory of Biology. But the Author would hope that the work may also prove acceptable to the non-technical reader, who may wish to gain a general idea of the manner in which the wondrous cycle of existence is carried on and maintained within the living organism.

Each succeeding year demonstrates more forcibly to the teacher of Natural Science the high importance of making his pupils thoroughly acquainted with those recognised principles on which the study of living beings is conducted. Looking on the present effort, therefore, as a sketch or rough picture, the Author has sought to draw broad outlines, rather than to fill in the details of a highly technical or completed work. He has desired to lead the student, as a passing traveller, through the great biological tract; halting in the ramble only to point out those more prominent points which will serve as familiar landmarks to guide and direct him in a subsequent and more extended survey. The information to be gained in such a manner forms the only sure basis

on which a solid superstructure of systematic knowledge may be afterwards built up.

Thoroughly aware of the theoretical, as well as the controversial nature of many stages in the biological journey, the Author has endeavoured, so far and as plainly as he could, to state the *pros* and *cons* of such debateable subjects. But he has not, at the same time, hesitated to express an individual or party opinion as to the merits or demerits of any particular school of thought or theory. A fair statement of facts, it will be allowed, is not invalidated by an honest expression or advocacy of the side to which an author may be disposed to lean.

The Author has thought that the aim and end of a student's "guide-book" would be better fulfilled by adopting a style often bordering on the conversational, than by writing in a manner which, if more strict and formal, would obviously prove less interesting and explanatory to beginners in the science.

With the view of aiding the junior student especially, a Glossary, containing explanations of the more technical terms used in the text, has been appended to the work.

The illustrations, taken from various sources, have been drawn on wood by the Author. A few are original, and the Author has been guided in his selection of the entire series, from the knowledge of the diagrams required to illustrate a course of prelections on the "Principles of Biology."

EDINBURGH, *January* 1874.