INDIVIDUALITY IN ORGANISMS

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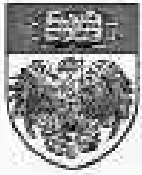

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PREFACE

The present book is an attempt to state, and to present some of the evidence in favor of, a conception of the nature of organic individuality which has gradually developed in the mind of the writer during the course of some fifteen years' investigation of the simpler processes of reproduction and development in the lower animals. In these forms organic individuality appears in relatively simple terms, and it is here if anywhere that we must look for the key to the problem of individuality in the higher animals and man.

With the great variety of facts at hand and the limited space available, it has often been difficult to decide what particular points of the evidence to include in the consideration and what to omit. To those familiar with biological facts it will doubtless be evident that many data from various lines of investigation have been either barely mentioned or entirely omitted.

The attempt has been made to show in some degree the wide range of applicability of this conception of individuality to various biological fields, and it is perhaps permissible to express the hope that, not only the physiologist and botanist, but also the neurologist, the psychologist, and the sociologist may find something of interest in it. Chaps. i and ii are necessarily somewhat abstract and condensed and may seem to some readers to demand too extensive a background of biological knowledge. A re-reading of these chapters after reading chaps. iii–vi will assist in decreasing this difficulty.

In the book *Senescence and Rejuvenescence*, recently published, the writer was chiefly concerned with the

periodic changes of the age cycle in the organic individual as one aspect of the life cycle. The present book deals primarily with the problem of the nature of the unity and order in the organism, the constancy of character and course of development, the maintenance of individuality in a changing environment, and the processes of physiological isolation, disintegration, and integration or individuation in reproduction. The two books, concerned as they are with these intimately associated aspects of the life cycle, are in many respects complementary and together constitute a presentation of the more important results and conclusions from the writer's investigations and a consideration of certain biological problems from the point of view attained.

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C. M. CHILD

October, 1915

CHAPTER I

THE PROBLEM

The organic world appears in the form of more or less clearly defined and limited and more or less complex entities which for lack of a better name we call individuals. The individual is not necessarily a single whole organism; it may be a part of a cell, a single cell, or a many-celled organ or complex part of the organism; or, as in most plants and some of the lower animals, a number of organisms possessing certain organs or parts in common, and therefore remaining in organic continuity with each other, may together constitute an individual. In at least most organic individuals a more or less orderly series of changes in structure and behavior which comprise the life-history occur, and in the course of these changes the individuals may give rise to new individuals by some sort of reproductive process.

In order to define the problem of the organic individual, it is necessary to inquire whether any fundamental identity or similarity is discoverable in all individuals and whether the changes which they undergo are subject to any general laws which we can at present apprehend.

THE CHARACTERISTICS OF THE ORGANIC INDIVIDUAL

The term "individual," meaning in its etymological sense something undivided or which cannot be divided, is open to various objections. Division of individuals to form new individuals is a characteristic feature of