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Principles of
G E N E T I C S

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FOREWORD

There is a common feeling that a textbook is a full and final exposition of the subject which it treats, and that by virtue of "knowing the book" one acquires all the knowledge of the subject which it is necessary to have. Such beliefs have little to justify them. No text is or can be complete or final; nor, if it were, would an understanding of the subject be gained by committing the whole book to memory. Knowledge is not acquired in this way, but grows in the minds of those who discover for themselves new facts and relationships.

The principles of genetics have developed out of the arduous study of scores of investigators, and understanding of principles can best be gained by the student through a process which is somewhat similar to that employed in their original discovery. This process begins with, and is continually stimulated by, curiosity as to the methods and the mechanism of inheritance; it proceeds by the collection and study of facts, and by a critical discrimination between those which are true and relevant and those which are untrue or irrelevant; and finally it involves a considerable practice of the reasoning faculty by which deductions are made, and applied or tested on many similar cases. It is only in this way that the process of inheritance can be *understood*. The learning of facts alone cannot accomplish this.

As an aid to such a comprehension of the science of genetics, this book includes problems of two types, which form an integral part of the subject matter. These are designed to stimulate curiosity, to provide opportunity for practicing and extending the methods and applying the theories outlined in the text, and to point the way to other related facts not specifically treated in this book. They are not designed as memory tests, although the continual use of facts in solving problems is at once the best method of committing these facts to memory as well as of understanding them.

One of these aids consists of questions for thought and discussion. Answers to these are not to be found in the text itself, but may be reached by a process of reasoning for which only the premises are given. Familiarity with the subject matter of the text will provide the raw material, while the synthesis resulting in a correct answer or intelligent discussion must take place in the student's mind.

Other problems are designed to provide more extended practice in reasoning from principles. Nearly all of this type require some computation

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