

SCIENCE

FRIDAY, JULY 17, 1914

THE PRINCIPLES OF THE THEORY OF
MUTATION¹

CONTENTS

<i>The Principles of the Theory of Mutation:</i> PROFESSOR HUGO DE VRIES	77
<i>The Problem of Lighting in its Relation to the Efficiency of the Eye:</i> DR. C. E. FERREE.	84
<i>Carl Fuchs:</i> FRANK E. BLAISDELL, SR.	91
<i>Estimates of Population</i>	92
<i>Scientific Notes and News</i>	94
<i>University and Educational News</i>	97
<i>Discussion and Correspondence:—</i>	
<i>Lightning Flashes:</i> DR. CLEVELAND ABBE.	
<i>A New Form of Collecting Pipette:</i> ARTHUR M. BANTA. <i>Is Melanism due to Food?</i> WM. T. COX	98
<i>Scientific Books:—</i>	
<i>Iddings on Igneous Rocks:</i> DR. WHITMAN CROSS. <i>Allen's Commercial Organic Analy- sis:</i> PROFESSOR LAFAYETTE B. MENDEL. <i>Fantham and Porter on Minute Animal Parasites:</i> PROFESSOR GARY N. CALKINS.	100
<i>Special Articles:—</i>	
<i>Direct Proof through Non-disjunction that the Sex-linked Genes of Drosophila are Borne by the X-chromosome:</i> CALVIN B. BRIDGES. <i>Hot-water Treatment for Cotton Anthracnose:</i> H. W. BARRE AND W. B. AULL	107
<i>The American Chemical Society. IV:</i> DR. CHARLES L. PARSONS	110

UNITY of internal structure combined with a great diversity of external forms is the great principle of organic differentiation. Lamarck was the first to point this out and to explain it by his theory of common descent. But the science of his time did not afford a sufficient body of facts in proof of his conception, and he failed to convince his contemporaries.²

¹ Address delivered at the University of Brussels, January 17, 1914.

² "The Mutation Myth" is the title of a recent article in this journal, N. S., Vol. XXXIX., No. 1005, April 3, 1914, p. 488. Its author, Edward C. Jeffrey, starts from the conception that the mutation theory has been derived from my experiments with *Oenothera Lamarckiana* and allied species. This opinion is indeed, even yet, not unfrequently held by those who have not read my books. It is obviously erroneous and therefore may well be called a myth. Logically and historically the desirability of those experiments has been derived from the theory, as will be seen in the text. Jeffrey bases his arguments upon the well-known researches of Geerts concerning the partial sterility of many of the members of the natural family of the *Onagraceæ*. Geerts found that in almost all the genera of this family, including all their species as far as investigated, the ovules are for one half in a rudimentary condition, which excludes the possibility of their being fertilized, whilst about one half of the pollen grains is sterile. This double character has therefore persisted during the pedigree-evolution of almost this whole family. In contradiction with Geerts, Jeffrey considers it to be an indication of a hybrid condition. If this were true, almost the whole natural family of the *Onagraceæ* would have evolved in a hybrid condition and *Oenothera Lamarckiana* would follow the rule. It remains doubtful, however, how this hypothesis could explain the high degree of mutability of *O. Lamarckiana*, since the majority of the supposed hybrid species do not show signs of such a condition.