

Thirty-five years have elapsed since the appearance of the first edition of Mr. Spencer's "Principles of Biology"—years that have witnessed an unparalleled development of the biological sciences both in the discovery of data and in the elaboration of theory. They have seen the application of these discoveries to the detection of the factors of organic evolution and to the fuller correlation of biology with the physical sciences. The comprehensiveness and prevision of the earlier work of Mr. Spencer in this field is evidenced by the fact that the author finds but little to modify in the new edition (Appleton), the principal changes taking the form of additions and supplementary discussions. Thus, we find a chapter on metabolism in which the relation of organic chemistry to vital processes is treated at length. Under the caption, "The Dynamic Element in Life," the author introduces a discussion of the essential element in vital phenomena—"a certain unspecified principle of activity" which cannot be conceived in physico-chemical terms. It is not an independent vital principle, nor can it be represented as a principle inherent in living matter. The ultimate reality behind vital phenomena, as behind all manifestations, transcends conception. A chapter upon structure has been added; and another—all too brief—upon cell-life and cell-multiplication lays under tribute the marvellous discoveries of the past decade. The accumulation of facts has necessitated an entire revision of the chapter on the embryological evidences of organic evolution. The author's theory of physiological units is extended and more fully applied to the problems of heredity and variation in a supplementary discussion introduced in this edition; while a few pages at the close of the book are devoted to answers to recent criticisms and to a brief consideration of new theories. Among the appendices we find reprinted from "The Contemporary Review" a series of four controversial essays on Weismannism, a discussion of animal fertility, and a summary of the evidence favoring the inheritance of acquired characters. This new edition is indispensable for all who wish information on current themes of biological discussion. It is a matter for regret that the health of the author did not permit a fuller treatment and a more complete incorporation of his views on the controverted questions of the day.

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