Book Reviews

A Retrospective Look

Studies in Genetics. The selected papers of H. J. Muller. Indiana University Press, Bloomington, 1962. xiv + 618 pp. Illus.

The former students of H. J. Muller have commemorated his 70th birthday by sponsoring this volume: a reprinting of almost 100 of Muller's scientific papers. Of course it has not been possible to publish each of the articles in its entirety in a single volume, but this adds an interesting personal touch to the compilation because Muller himself selected the articles and the portions thereof to be included. Thus, one is given some insight into how one of the greatest minds in contemporary biology evaluates his own contributions. Muller states in the introductory remarks, "In choosing the works to be given a place here, I have thought it appropriate . . . that a larger proportion of my earlier writings be included than of my later ones, since the former are less known and less available to present readers. I have also given preference, other things being equal, to the writings in which there was earlier mention of given principles, rather than to papers that consisted mainly of restatements."

In perusing these pages, some readers may be surprised to find included not only broad general papers, such as the one on the guidance of human evolution or the excerpts from his brilliant Pilgrim Trust Lecture, "The gene," but also such papers as the little abstract noting that the same frequency of translocations was induced in the sc^8-sc^4 X chromosome of *Drosophila melanogaster* as in the sc^4-sc^8 chromosome. This volume will provide the evidence, for those not previously aware of it, that Muller can get just as excited about some seemingly esoteric fact of *Drosophila* genetics as about the potentialities of genetics for the betterment of mankind. Muller's contributions to biology are not based solely on his imaginative and creative syntheses in genetic theory. They are also based on his ingenious syntheses of *Drosophila* stocks which he devises to answer experimentally some of the finer points of genetics. His publications serve as example of the fact that advances in scientific knowledge come about by giving attention to detail as well as to generalization. Muller observes, in the introductory remarks to these papers, "It is true that in genetic biology there have been some enormous sudden breakthroughs. . . . However, retrospection of the type here under discussion will also tend to show how minute were *most* of the steps that the participants thought of at the time as highly discontinuous, yet what a distance was spanned by the summation of such steps."

The papers are divided into nine parts: The Chromosome Basis of Heredity and Linkage, Genotype-Phenotype Relations, Gene Theory, "Spontaneous" Gene Mutations, Gene Mutations Induced by Radiation, Chromosome Properties and Changes, Heterochromatin, Evolution, and Human and General Genetics. Within each part the papers are arranged chronologically. The book ends with a complete bibliography listing the 336 papers Muller had published through 1961.

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Electric Power Terminology

Concise Encyclopaedia of Electrical Engineering. M. G. Say, Ed. Newnes, London, 1962. xii + 906 pp. Illus. 140s.

The Newnes encyclopaedia is a unique volume in that it is much more complete than a simple dictionary of terms but not as detailed as a handbook. Its coverage is not as broad as the title indicates and, for the most part, is restricted to the power field rather than such fields as communications, automatic control, and electronics. Engineers employed in the power industry (including power generation, transmission, and utilization in heavy industries) and students who are specializing in the power field will find the volume very useful. All aspects of this field are covered, and the volume is a convenient, quick source for looking up an unfamiliar term or for checking the basic principles of some component.

One excellent feature is that, despite the necessity for briefness, the contributors are rigorously correct in their explanations. To compromise technical correctness in a brief explanation seems to be a natural tendency, but the contributors achieve both briefness and accuracy to an admirable extent. For the most part, this is accomplished by giving the fundamental concepts of the term and omitting the details. If the reader cannot supply the details, he can, after consulting the encyclopedia, effectively use a more specific reference. For example, under the term, *Amplidyne*, a good basic description of this device and its operation is given. Such details as construction and commutating windings are omitted. Dynamic equations necessary for design in control applications are also omitted; however, several examples of control application are given, and the engineer may well be able to supply the dynamic equations from the basic principles given.

My only criticism is that, although the encyclopedia is quite complete as far as the present state of the power field is concerned, it neglects those aspects which appear promising for future development. For example, magnetohydrodynamics is not listed separately but is covered only as a subtopic under thermo-electric-converter. This aspect of power generation promises to become very important and is, therefore, worthy of much more complete treatment. The coverage of Laplace transform, a topic of great importance to the power engineer, is unusually brief. I could not find a reference to the silicon controlled rectifier, but its counterpart, the thyratron, which it is replacing, rates three pages.

Except for this lack of a forward looking approach, the encyclopedia is excellent and will prove to be very useful in the areas indicated.

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