

TRANSFERENCE OF THE TERM "GENOTYPE"

TO THE EDITOR OF SCIENCE: SCIENCE for October 13 just to hand contains announcement of Professor Johannsen's Columbia Lectures. Permit us to protest again in the strongest possible manner against this unwarranted transference of the term "genotype" and change of its meaning. Professor DeVries set a bad example by using "mutation" in a new sense. Is there to be no limit to this rough riding over workers in other branches of biology?

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SCIENTIFIC BOOKS

STEINMETZ'S ENGINEERING MATHEMATICS

THIS book is based upon a lecture course given for some years by the author to students of electrical engineering at Union College. The title might well lead one to expect that here at last is a book by a competent authority presenting the mathematical foundation which in his opinion should constitute a part of the training of every engineer. But upon reading the preface expectations and hopes of this nature are abruptly terminated when the reader learns from the summary paragraph:

"Thus the following work is not intended as a complete course in mathematics, but as supplementary to the general college course of mathematics, or to the general knowledge of mathematics which every engineer and really every educated man should possess."

The book is even further limited in its scope than is indicated by the quoted paragraph. For it is largely devoted to the particular sort of mathematics which is of great service to the electrical engineer only. In spite of this the mastery of its contents would unquestionably not be a useless accomplishment to the student in any branch of engineering.

The first chapter is devoted to an elementary exposition of the properties of the general number or complex quantity and the chapter

is replete with graphical illustrations. A particular feature of this chapter showing the usefulness of the theory developed is the discussion of the steam path in a turbine.

In the second chapter is given a discussion of series of the types $1 + x + x^2 + x^3 \dots$ and $1 - x + x^2 - x^3 + \dots$, designated as potential series. Examples from electrical engineering problems are given to illustrate the applicability of such series to the development of certain functions. The properties of the exponential function are adequately treated and the subject of differential equations is briefly touched upon.

The third chapter treats quite extensively of trigonometric functions and series. Interesting illustrative problems are discussed.

Chapter IV. deals in an elementary but sufficiently comprehensive manner for the purposes of the engineer with the subject of maxima and minima of functions. Numerous practical examples in electrical engineering are worked out numerically. There is also given a short discussion of the method of least squares with an illustrative example from the theory of the induction motor.

Methods of approximation are treated in Chapter V. This subject, an art in itself, is one which is rarely discussed explicitly in books on mathematics or engineering.

Chapter VI. contains an extensive discussion of the subject of empirical curves and the methods of obtaining analytical equations to fit them.

The eighth chapter and the final one is devoted to methods of numerical calculation. A thorough knowledge of the subject matter of this chapter and that of the two preceding chapters obviously should be a part of the equipment of every computing engineer, electrical or otherwise. A striking feature of the book is the author's continual insistence throughout upon the importance to every engineer of a thorough mastery of the sadly neglected art of numerical computation.

There are two appendices, one containing notes on the theory of functions, the other tables of exponential and hyperbolic functions.