mendation of the committee above mentioned should not be accepted, for it is opposed to the established rules of priority.

F. W. Clarke

THE CYTOLOGICAL TIME OF MUTATION IN TOBACCO

In the current volume of SCIENCE, p. 35, Hayes and Beinhart after describing the origin of a many-leaved variety of Cuban tobacco by mutation say:

This mutation must have taken place after fertilization, i. e., after the union of the male and female reproductive cells. If the mutation had taken place in either the male or female cell before fertilization, the mutant would have been a first generation hybrid, and would have given a variable progeny the following season.

Is it not equally probable that the mutation occurred in an egg-cell which then developed without fertilization? Parthenogenesis is known to occur in tobacco, and mutation in a growing or immature germ-cell seems inherently more probable than in a fully formed and fertilized one. Perhaps the behavior of the additional mutants obtained in 1913 will throw light on the matter.

W. E. Castle

Bussey Institution,
January 2, 1913

SCIENTIFIC BOOKS

Analytical Mechanics. By Haroutune M. Dadourian, M.A., Ph.D., Instructor of Physics in the Sheffield Scientific School of Yale University. D. Van Nostrand Company. Price $3.00.

In his preface, the author states that his "work is based upon a course of lectures and recitations which the author has given, during the last few years, to the junior class of the Electrical Engineering Department of the Sheffield Scientific School." We expect this book to contain, therefore, several topics of special interest to students of electricity. We find a chapter devoted to "Fields of Force and Newtonian Potential," one to "Periodic Motion," one to "Energy" and one to "Work." But, as the author states, "In order to make the book suitable for the purposes of more than one class of students more special topics are discussed than any one class will probably take up. But these are so arranged as to permit the omission of one or more without breaking the logical continuity of the subject."

The author himself is a physicist, and perhaps he intends this book to be suitable for classes in physics. The book seems to be written from the standpoint of the physicist rather than from the standpoint of the engineer. If this book is intended for the students of civil and mechanical engineering, then it must be said it has no advantage over the number of books already in the field. I doubt if it is even as suitable.

Judging from the recent discussions concerning the teaching of mathematics and mechanics, it seems that the successful book has not yet been written. Possibly the book everybody is looking for must be written on a new plan. To say that an author deviates from the generally acknowledged plan need not be a criticism of his book. Dr. Dadourian makes his volume unique in several ways, but I doubt if it will stand the test.

In the first place, he seems to avoid the graphical treatment. The modern tendency seems to be to emphasize this phase of the subject.

The question of "units" is always a source of contention between the physicist and the engineer. The absolute system of units is certainly the most logical. To the engineer, however, it is not a question of logic, but of adaptability.

Another departure from the usual mode of procedure in modern elementary text-books in mechanics is the extent to which he makes use of "vector addition." The first chapter is devoted to the subject of the "addition and resolution of vectors." On page 10 he gives the analytical expression for the resultant of any number of vectors, and the resolution of a vector into its three rectangular components. This section is made the basis of his whole book so far as the composition and resolution of vector quantities (forces, moments, couples, etc.) are concerned. All he needs to say is,