cautions had been given more fully in a few preliminary cases, so that the student might have been helped to understand thoroughly his early exercises. As he gets more advanced he ought to refer to standard works and original treatises. Then this present volume will furnish an excellent series of suggestions as to work that may be done in many directions in order to gain experience and increase his knowledge. C. J.

Elementary Dynamics. By W. M. Baker. Second edition, revised. Pp. x+318. (London: George Bell and Sons, 1905.) Price 4*s.* 6*d.*

THIS text-book follows ordinary lines. The author does well to direct the attention of the beginner at the outset to the fact that *weight* and *mass* are by no means the same thing. Newton's laws are given almost unchanged in words, the second being altered to "rate of change of momentum is proportional to the impressed force, &c." The word *rate* is, in strictness, ambiguous, since it does not necessarily imply time-rate; and the explanation (p. 33) that "rate of change of momentum" means the change of momentum *in* the unit of time is not quite accurate, since the unit of time may be an hour or a week. The poundal figures a great deal; but, happily, as a rule, the values of forces are given in gravitation measure in the answers. The antiquated and inaccurate terms *power* and *weight* are used in the discussion of machines, although *power* has been very properly defined as time-rate of doing work. The old method of defining the instantaneous value of a variable angular velocity as "the number of unit angles which would be described in the unit of time, if during that unit the angular velocity remained the same as at the instant under consideration" is adhered to; but this definition defines nothing. The author is commendably clear in his warning to the student that "centrifugal force" is not a force acting on a revolving body. In the discussion of projectiles, the eye is not pleased by the sight of "$u \sin at - \frac{1}{2}gt^2$" for $ut \sin \alpha - \frac{1}{2}gt^2$; and it is just possible that a beginner may (by the inscrutable ingenuity for error which students sometimes exhibit) misunderstand the expression altogether.

The book contains a very large collection of examples, and has, as a slight departure from the plan of ordinary text-books, a short chapter at the end showing how initial tensions are calculated when cords are cut or broken.

A Historical Geography of the British Colonies. By C. P. Lucas, C.B. Vol. ii. The West Indies. Second edition, revised by C. Atchley. Pp. 348; diagram and maps. (Oxford: The Clarendon Press.) Price 7*s.* 6*d.*

THIS valuable work has been published at an opportune moment, for the decisions of the Imperial Government in such matters as the withdrawal of the white troops and the non-renewal of the mail contract have led to a widespread idea that our West Indian possessions are about reaching the most momentous stage in their long history, namely, their transfer to the United States—an extreme step which is hardly likely to be taken in our time. The volume deals not only with the West Indian islands proper, from Jamaica round to Trinidad, but also with the Bermudas, the Bahamas, the mainland colonies of Guiana and Honduras, and even the far distant possessions in the Cape Horn region—the Falkland Islands and South Georgia. The total area aggregates 127,345 square miles, Guiana alone being 100,000, and Honduras 7562 square miles. The remainder is cut up into a multitude of small islands, ranging down to the Bermudas group, of 19 square miles. Yet each island, however small, has its own separate history. Originally the Spaniards had Papal authority for taking possession of the New World, but they were not a colonising people, and as "conquerors and crusaders they looked for a large area of territory; consequently, while they discovered the whole ring of islands, they settled on the larger ones only, and on those only which lay nearer to the continent. With the smaller islands they had little dealings beyond carrying off their inhabitants for slaves." There was thus no effective occupation of the large majority of the islands, and English, French, and Dutch buccaneers appearing on the scene, in the course of time they divided the islands between them, the lion's share eventually, as the result of treaties or wars, falling to the English. The earliest of the British possessions was Barbados (1605), the latest, by conquest, St. Lucia and Tobago (1803). Obviously, within the compass of a single volume, only a general historical account of each colony could be given, and Mr. Lucas has accomplished his task most successfully. But in addition to the purely historical portion he supplies much information relating to the geography, the geology, and the climate of the islands—as varied as their history. The economic conditions are also fully set forth, the particular industries of the several islands, their exports and imports, and so on, while the form of government of each colony is described. There is a very complete index, and at the end of each chapter there is a list of books and publications which will afford the reader fuller details, many other authorities being referred to in footnotes.

Vorlesungen über mathematische Näherungsmethoden. By Dr. Otto Biermann. Pp. ix+226. (Brunswick: Vieweg und Sohn, 1905.) Price 8 marks.

THE aim of the author of this book is to give a connected and fairly comprehensive account of the most important mathematical methods of approximate calculations. Strictly speaking, all scientific calculations are approximate; but by suitable processes the approximation may be carried to a degree of accuracy sufficient to satisfy the most exacting requirements. How best to effect the approximation in any given case must ever be a most important problem. The necessity for it begins with ordinary arithmetical operations, to which, accordingly, Dr. Biermann devotes a large part of the first chapter. A good deal of detail might have been spared here if only to make room for a complete account of Horner's method of solving numerical equations and extracting roots. The algebraical theory only of Horner's method is given in a later chapter, but not the expeditious arithmetical process. To give an idea of the scope of the book, we find systematic discussions of the calculations of logarithms, graphical solution of equations, methods of interpolation and differences, determination of Fourier coefficients, methods of quadrature and cubature, and a chapter containing, among other things, a description of the sliding scale and Amsler's planimeter. There are some interesting novelties in the sections on graphical solution of equations which might well find a place in our English text-books of algebra, such, for example, as Mehmke's method. The book does not cover all the ground indicated by the term *Näherungsmethoden*, but it certainly covers more ground than any other book. Indeed, it fills what has been until now a distinct blank in mathematical literature; and the author is to be congratulated on the production of a work which cannot fail to be of service to the student of mathematical methods.