SHORTER NOTICES.

Leçons de Mécanique Elémentaire. Par P. APPELL et J. CHAP-
PUIS. Paris, Gauthier-Villars, 1903. viii + 177 pp.

MATHEMATICAL instruction in the secondary schools of
France has recently been passing through a period of transi-
tion. With the object of making the matter taught less ab-
stract the study of kinematics and mechanics has been intro-
duced into those schools, and the book under review is prepared
especially to meet the new demands on the students. The title
is, however, misleading, as the book deals with kinematics
only ; a second volume, devoted to the needs of la classe de
mathématiques, will follow.

The presentation given in the volume at hand is detailed
and thorough ; in fact, so carefully are the ideas of segments,
vectors and projections developed that it is with something of
a shock that one comes, in theorem II, page 18, to the as yet
undefined term resultant. The method is geometric rather
than analytic. Vectors are made of fundamental importance, as
is evidenced by the fact that velocity and acceleration are de-
fined to be certain vectors ; and the definition and notation of
the derivative are used frequently. There are numerous strik-
ing illustrations and numerical examples interspersed in the
text, but no problems for the student are given.

The first chapter, comprising pages 1–52, contains an admir-
able elementary treatment of segments on an oriented line
straight or curved, vector addition, and the theory of projection
and of the moment of a vector with respect to a point, an axis,
or a second vector.

The second chapter is devoted to kinematics and falls into
four parts. In the first part, pages 53–73, the ideas of motion
and time are considered. The idea of motion is, very sensibly,
tacitly assumed without even mention of the impossibility of
defining motion ; that motion is purely relative is, however, very
carefully brought out by numerous examples. The ideas of
time and its measurement are considered more in detail, and the
mechanical and electrical devices connected with the pendulums
in laboratory use are explained.

The second part of the chapter, pages 74–118, deals with the
kinematics of a point. Uniform motion and uniformly accel-

erated motion along a straight line are considered in detail but it is to be remarked that no reference is made to freely falling bodies. The ideas of the velocity and acceleration of any moving point are carefully explained and application is made to motion in a circle.

The study of translations, rotations, and screw motions occupies the third part, pages 119–154. The consideration of a number of machines and mechanical devices in which these motions occur shows the practical trend of the book.

Finally, in pages 155–171, the motion of a body relative to a system which is itself in motion is considered.

ARTHUR SULLIVAN GALE.

Annuaire pour l'An 1904, publié par le Bureau des Longitudes. Paris, Gauthier-Villars.

IN accordance with the plan foreshadowed in last year's issue, the Annuaire for 1904 does not contain any geographical or statistical details. Nor does it give astronomical information of " constant " value ; only that part which varies from year to year is retained. These omitted portions are to be present in the volume for 1905, while certain parts which appear now will not be given then.

On the other hand, the information on the parts retained has been largely increased, so much so that, in spite of the omissions, the volume, apart from the appendix which consists of special articles, shows an increase of 64 pages. Most of the sections have been rewritten with additional tables, and the constants have, as far as possible, been brought up to date. A reference to the preface — too long to insert here — will show the directions in which alterations have occurred.

The notices are two : " Note sur la conférence internationale tenue à Copenhague en août 1903," by M. Bouquet de la Grye, which gives a full account of the work done at the meeting, and " Explication élémentaire des marées," by M. P. Hatt. In the latter, the writer attempts to set forth in an elementary way the various forces which produce the tides. He makes a careful distinction between the equilibrium theory and the dynamical theory and in general explains them more fully than Professor Darwin in his well-known work. M. Hatt, however, has hardly achieved the same success ; even to one moderately familiar with the problem, his article is not abso-