

expressions for the ellipse of inertia, kinetic energy, and the equations of motion, take very simple forms.

I wish to thank the speakers for the use of manuscripts, and to express my indebtedness to many who gave me abstracts of their papers.

C. M. MASON.

GÖTTINGEN,
October, 1902.

SHORTER NOTICES.

Compte rendu du deuxième Congrès international des Mathématiciens tenu à Paris du 6 au 12 août 1900. Procès-verbaux et Communications publiés par E. DUPORCQ. Paris, Gauthier-Villars, 1902. 8vo. 455 pp.

THE members of the second international congress of mathematicians may have felt a little annoyance at the delay in the publication of the official report; but now that this is at last in their hands, the delay no longer appears unreasonable. A glance through the volume makes it plain that the editor's task has been very serious, inasmuch as its execution has depended on the good pleasure of so many contributors, and these so widely dispersed, that it has been quite beyond his power to expedite matters. Editor and publisher are to be congratulated on the beautiful volume which has recently appeared; it was worth waiting for.

The first 26 pages contain the minutes of the sectional and general meetings; pages 27-153 are occupied by the four principal addresses, with which is placed also a French translation of Hilbert's survey of the future problems of mathematics; pages 154-450 are devoted to the sectional papers. Of these thirty-two are given, thus leaving six or eight unreported for reasons beyond the editor's control. In general the papers appear in a French version, the exceptions being one in Italian and eight in English. As a matter of fact, the majority of the communications were made in French, but there were certainly some in German.

The most interesting articles for present reading are naturally those of a somewhat general character, for the results of more special interest have not been held back pending this publica-

tion. The principal addresses have already been given in outline in the BULLETIN,* with the exception of Mittag-Leffler's account of the correspondence between Weierstrass and S. Kowalevski. This is perhaps as interesting as anything in the book. At the end of the volume there is given, in a French translation, a paper by Veronese, "Les postulats de la géométrie dans l'enseignement," which was intended for the Congress, though it was not actually presented then. Among the shorter articles the most satisfying and appropriate are those of the character of an aperçu, as for instance d'Ocagne, "Sur les divers modes d'application de la méthode graphique à l'art du calcul" — Padé, "Aperçu sur les développements récents de la théorie des fractions continues" — and Amodeo, "Coup d'œil sur les courbes algébriques au point de vue de la gonalgité." Amodeo, in particular, has given a most interesting résumé of results obtained regarding groups of points, g_k^1 , cut out on a curve of order m by adjoints of order $m - 3 - a$, adjoints whose existence presupposes the condition $p \equiv \frac{1}{2}am + 1$. But different readers will naturally find most to interest them in different papers.

CHARLOTTE ANGAS SCOTT.

Probabilités et Moyennes Géométriques. Par EMANUEL CZUBER. Traduit par HERMANN SCHUERMANS. Préface de CHARLES LAGRANGE. Paris, A. Hermann, 1902. xi + 214 pp.

THE various problems considered in the direct theory of probability may be roughly divided, as regards the number of possible cases, into four classes. First, the ordinary problems arising in connection with games of chance, where the number of cases is limited, the methods employed being those of combinatorial analysis. Second, problems where the number of cases is still finite, but very large, so that recourse must be made to approximate results based upon Stirling's formula. Here belong, for example, Bernouilli's theorem and the so-called law of large numbers. The third class includes those problems in which the number of cases is infinite, depending upon the values of a certain number of arbitrary parameters; while in a fourth class we may place the problems depending upon arbitrary laws or functions. The last class has as yet received little attention. It may be remarked in passing that

* BULLETIN, vol. 7 (1900-1901), pp. 57-79.