

Professor O. Tedone, of the University of Genoa, died April 18, 1922, at the age of fifty-two years.

Professor Hermann Grassmann, of the University of Giessen, died in January, 1922, at the age of sixty-five years.

Professor J. C. Kapteyn, professor of astronomy and mechanics at the University of Groningen, died June 18, 1922.

Professor Pierre Boutroux, of the Collège de France, died June 25, 1922. Professor Boutroux had been a member of the American Mathematical Society since 1913.

Professor James McMahon, of Cornell University, died June 1, 1922, at the age of sixty-six years. Professor McMahon had been a member of the American Mathematical Society since its organization (as the New York Mathematical Society) in 1891. He was for seven years associate editor of the *Annals of Mathematics*, and was secretary of section A, general secretary, and vice-president of the American Association for the Advancement of Science.

NEW PUBLICATIONS

I. HIGHER MATHEMATICS

- BENNY (L. B.). *Plane geometry. An account of the more elementary properties of the conic sections, treated by the methods of co-ordinate geometry, and of modern projective geometry, with applications to practical drawing.* London, Blackie, 1922. 8 + 336 pp.
- BIEBERBACH (L.). *Funktionentheorie.* (Teubners Technische Leitfäden, Band 14.) Leipzig, Teubner, 1922. 118 pp.
- BOREL (E.). See LÉVY (P.).
- CARTAN (E.). *Leçons sur les invariants intégraux.* Paris, Hermann, 1922. 10 + 210 pp.
- DENJOY (A.). *Calcul des coefficients de la série trigonométrique convergente la plus générale dont la somme est une fonction donnée.* Paris, Gauthier-Villars, 1921. 4to. 16 pp.
- GOURSAT (E.). *Leçons sur le problème de Pfaff.* Paris, Hermann, 1922. 8 + 387 pp.
- HAAG (J.). *Cours complet de mathématiques spéciales. Tome 2: Géométrie.* Paris, Gauthier-Villars, 1921. Svo. 6 + 662 pp.
- HADAMARD (J.). See JUVET (G.), LÉVY (P.).
- JUVET (G.). *Introduction au calcul tensorial et au calcul différentiel absolu. Préface de M. J. Hadamard.* Paris, Blanchard, 1922. Svo. 2 + 101 pp.
- KOWALEWSKI (G.). *Die klassischen Probleme der Analysis des Unendlichen. Ein Lehr- und Uebungsbuch für Studierende zur Einführung in die Infinitesimalrechnung. 2te Auflage.* Leipzig, Engelmann, 1921. Svo. 8 + 342 pp.

- LÉVY (P.). Leçons d'analyse fonctionnelle. Avec une préface de M. J. Hadamard. (Collection de Monographies sur la Théorie des fonctions, publiée sous la direction de M. E. Borel.) Paris, Gauthier-Villars, 1922. 6 + 442 pp.
- LINDOW (M.). Differentialgleichungen. (Aus Natur und Geisteswelt, Nr. 589.) Leipzig, 1921.
- POST (J. F.). Ueber die Darstellung ganzer Zahlen als Summen von sieben Kuben. (Diss., Halle-Wittenberg.) Halle, Hohmann, 1920. 36 pp.
- RIEHLE (A.). Ueber den Bertinischen Satz und seine Erweiterung. (Diss.) Tübingen, 1920.
- SIMON (P.). La recherche des lieux géométriques en géométrie analytique. Paris, Colin, 1922. 8vo. 232 pp.
- UHLER (A.). Sur les séries zétafuchsienues. (Diss., Lund.) Lund, 1921. 57 pp.

II. ELEMENTARY MATHEMATICS

- AUGUST (E. F.). Vollständige logarithmische und trigonometrische Tafeln. Berlin, 1922.
- BARTHOLOMEW (W. E.). See EDGERTON (E. I.).
- EDGERTON (E. I.) and BARTHOLOMEW (W. E.). Business mathematics. New York, Ronald Press Company, 1921. 6 + 305 pp.
- FORD (W. B.). A brief course in college algebra. New York, Macmillan, 1922.
- KEAL (H. M.) and LEONARD (C. J.). Mathematics for shop and drawing students. New York, Wiley, 1921.
- LEONARD (C. J.). See KEAL (H. M.).
- PASSANO (L. M.). Calculus and graphs simplified for a first brief course. New York, Macmillan, 1921. 8 + 167 pp.
- SICELOFF (L. P.), WENTWORTH (G.) and SMITH (D. E.). Analytic geometry. Brief course. Boston, Ginn, 1922. 6 + 186 pp. \$1.80
- SMITH (D. E.). See SICELOFF (L. P.).
- WENTWORTH (G.). See SICELOFF (L. P.).

III. APPLIED MATHEMATICS

- BACH (C.). Elastizität und Festigkeit. 8te, vermehrte Auflage. Unter Mitwirkung von R. Baumann. Berlin, Springer, 1920.
- BAUMANN (R.). See BACH (C.).
- BAVINK (B.). Grundriss der neueren Atomistik. Leipzig, Hirzel, 1922. 8vo. 6 + 130 pp.
- BELLENOT (H.). See BORN (M.).
- BLANC (A.). Rayonnement. Principes scientifiques de l'éclairage. Paris, Colin, 1921. 16mo. 212 pp.
- BOREL (E.). L'espace et le temps. Paris, Alcan, 1922. 16mo. 245 pp.
- BORN (M.). La constitution de la matière. Traduit par H. Bellenot. Paris, Blanchard, 1922. 8vo. 84 pp.
- BROMWICH (T. J. I'a.). Examples in optics. Cambridge, Bowes and Bowes, 1921. 16 pp.
- CASE (J.). Notes and examples on the theory of heat and heat engines. Cambridge, Heffer, 1922.

- CLARKE (H. T.). See PLANCK (M.).
- CLIBBENS (D. A.). The principles of the phase theory. Heterogeneous equilibria between salts and their aqueous solutions. London, Macmillan, 1920. 20 + 382 pp. 25s.
- COWLEY (W. L.) and LEVY (H.). Aeronautics in theory and experiment. 2d edition. London, Arnold, 1920. 12 + 331 pp. 25s.
- DUBROCA (M.). Au sujet de la théorie de la relativité restreinte. 1e partie. Dijon, Imprimerie R. de Thorey, 1921. 8vo. 76 pp.
- EMSLEY (H. H.). See GLEICHEN (A.).
- FÖPPL (A.). Vorlesungen über technische Mechanik. Band 1: Einführung in die Mechanik. 7te Auflage. Band 2: Graphische Statik. 5te Auflage. Band 3: Festigkeitslehre. 8te Auflage. Band 4: Dynamik. 6te Auflage. Leipzig, 1920-1921.
- GEIGER (H.) und MAKOWER (W.). Messmethoden auf dem Gebiete der Radioaktivität. Braunschweig, Vieweg, 1920. 9 + 156 pp.
- GLEICHEN (A.). The theory of modern optical instruments. Translated from the German by H. H. Emsley and W. Swaine. 2d edition. London, H. M. Stationery Office, 1921. 11 + 365 pp.
- GLOVER (J. W.). See UNITED STATES.
- GRAMMEL (R.). Die mechanischen Beweise für die Bewegung der Erde. Berlin, Springer, 1922. 2 + 71 pp.
- HALDANE (VISCOUNT). La règle de la relativité. Traduction française de H. de Varigny. Paris, Gauthier-Villars, 1922. 8vo. 590 pp.
- HIGGINS (A. L.). The transition spiral and its introduction to railway curves. With field exercises in construction and alignment. London, Constable, 1921. 8 + 111 pp. 6s.
- VON IGNATOWSKY (W.). Die Vektoranalysis und ihre Anwendung in die theoretischen Physik. 1ter Teil. 2te Auflage. Leipzig, 1921.
- JUVET (G.). See WEYL (H.).
- LAURENT (M.). Les trois états de matière. Etat fluide, état corpusculaire, corps simples. Paris, Maloine, 1922. 8vo. 52 pp.
- LECORNU (L.). Dynamique appliquée. 2e édition, revue, corrigée et augmentée. 2 volumes. Paris, Doin, 1921.
- LENARD (P.). Ueber Relativitätsprinzip. Aether, Gravitation. Neue, vermehrte Ausgabe. Leipzig, Hirzel, 1920.
- LEROY (R.). See WEYL (H.).
- LEVY (H.). See COWLEY (W. L.).
- DE LOSADA Y PUGA (C.). Las anomalías de la gravedad. Lima, Torres Aguirre, 1920.
- LOTZE (A.). Die Grundgleichungen der Mechanik insbesondere starrer Körper, neu entwickelt mit Grassmanns Punktrechnung. Leipzig, Teubner, 1922. 8vo. 50 pp.
- MCCABE (J.). See NORDMANN (C.).
- MAGGI (G. A.). Elementi di statica e teoria dei vettori applicati. Pisa, Spoerri, 1920. 8vo. 176 pp.
- MAKOWER (W.). See GEIGER (H.).
- MIALL (S.). The structure of the atom. Notes on some recent theories. London, Benn, 1922. 3 + 26 pp.

- MILLS (J.). Within the atom. Popular view of elektrons and quanta. New York, Van Nostrand, 1921. 232 pp. \$2.25
- NORDMANN (C.). Einstein and the universe. A popular exposition of the famous theory. Translated by J. McCabe. London, Fisher Unwin, 1922. 185 pp.
- OPPENHEIM (S.). Das astronomische Weltbild im Wandel der Zeit. I: Vom Altertum bis zur Neuzeit. 3te Auflage. Leipzig, Teubner, 1920.
- PHILIP (A.). The calendar. Its history, structure, and improvement. Cambridge, University Press, 1921. 12 + 104 pp. 7s. 6d.
- PILLET (J.). Traité de géométrie descriptive. Nouveau tirage. Paris, 1921. 4to. 270 pp.
- PLANCK (M.). Einführung in die Theorie der Elektrizität. Leipzig, 1922.
- . The origin and development of the quantum theory. Translated by H. T. Clarke and I. Silberstein. Oxford, Clarendon Press, 1922. 8vo. 23 pp.
- READE (W. H. V.). A criticism of Einstein and his problem. Oxford, Blackwell, 1922. 6 + 126 pp.
- VON ROHR (M.). Theorie der optischen Instrumente. Berlin, 1922.
- RUSSELL (R. A. B.). See THIRRING (J. H.).
- SCHMIDT (H.). Das Weltbild der Relativitätstheorie. 2te, vermehrte Auflage. Hamburg, 1920.
- SILBERSTEIN (L.). See PLANCK (M.).
- SOMMERFELD (A.). Atombau und Spektrallinien. 3te Auflage. Braunschweig, Vieweg, 1922. 8vo.
- SWAINE (W.). See GLEICHEN (A.).
- TAMMANN (G.). Aggregatzustände. Die Zuständigkeitsveränderungen der Materie von Druck und Temperatur. Leipzig, Voss, 1922. 8 + 294 pp.
- THIRRING (J. H.). The ideas of Einstein's theory. A theory of relativity in simple language. Translated by R. A. B. Russell. London, Methuen, 1921. 15 + 167 pp. 5s.
- TIMERDING (H. E.). Die Fallgesetze. 2te Auflage. Leipzig, Teubner, 1921. 4 + 51 pp.
- UNITED STATES life tables, 1890, 1901, 1910, and 1901-1910. Explanatory text, mathematical theory, computations, graphs, and original statistics, also tables of United States life annuities, life tables of foreign countries, mortality tables of life insurance companies. Prepared by J. W. Glover. Washington, Government Printing Office, 1921. 4to. 496 pp.
- DE VARIGNY (H.). See HALDANE (VISCOUNT).
- VELASCO DE PANDO (M.). Calcolo de las probabilides. Paris, Gauthier-Villars, 1920. 8vo. 430 pp.
- VILLEY (J.). Physique élémentaire et théories modernes. I: Molécules et atomes. Paris, Gauthier-Villars, 1921. 8vo. 10 + 198 pp.
- WEYL (H.). Temps, espace, matière. Leçons sur la théorie de la relativité générale. Traduit sur la 4e édition allemande par G. Juvet et R. Leroy. Paris, Blanchard, 1922. 8vo. 8 + 290 pp.