THE

ROYAL ASTRONOMICAL SOCIETY OF CANADA

LIBRARY CATALOGUE

And Supplementary List of Lantern Slides
TORONTO



TORONTO:

ROYAL ASTRONOMICAL SOCIETY OF CANADA

LIBRARY CATALOGUE

TORONTO: 1911

DIVISION I .-- Bound Periodicals

Annual Record of Science and Industry: 1872.

ASTRONOMICAL JOURNAL: Vols. xxii.- xxvm (In progress).

✓ ASTRONOMICAL REGISTER: 1868 to 1872 (inclusive) and 1880 to 1886 (inclusive).

Astronomische Mitteilungen, Zurich: 1876 to 1895. (In progress).

ASTRONOMISCHE RUNDSCHAU: Vols. iii.- x. (inclusive), 1901-8.

ASTRONOMY AND ASTROPHYSICS (previously Sidereal Messenger): Vols. xi.-xiii., also General Index.

ASTROPHYSICAL JOURNAL: Vols. i. xxviii. (inclusive) 1895-1908. General Index: Vols. i. xxxvi. (In progress).

CANADIAN MAGAZINE: 1871 to 1873.

CAMBRIAN NATURAL OBSERVER: Astronomical Society of Wales: Vols i.- vi. and x, 1890-1903 and 1907-8. (In progress).

FRANKLIN INSTITUTE, "Journal": Vols. cl.-cliv., clvii.-clix. and clxii.-clxx (In progress).

JOURNAL of Arts and Manufactures, Upper Canada: 1863-4.

KNOWLEDGE: (in progress) Vols. i.-iv.; -v. (2 copies), vii., xv., xvi. and xvii. (2 copies), xvii.-xxvi. and New Series Vols. i.-iii. (inclusive);

MONTHLY WEATHER REVIEW, U. S.: 1893 to 1908. NEWSPAPER CUTTINGS: Andrew Elvins: 2 Vols.

OBSERVATORY: (in progress) Vols. xxiv.-xxxii., (1901 to 1909).

V PHOTOGRAPHIC NEWS, The: 1863, 1864.

POPULAR ASTRONOMY: (in progress) Vols. i.-xvi, 1893-1908.
General Index to Sidereal Messenger, Astronomy and Astrophysics, and to Popular Astronomy, Vols. i.-xvi. (7)

Public Works—Canada—Annual Report of Minister of, 1887-8, 1889-90.

REPORT of the U. S. Secretary of Agriculture: 1890.

SCIENCE: Vols. iii. and iv.

SIDEREAL MESSENGER (continued as Astronomy and Astrophysics): Vols. i.- x. inclusive. General Index: Vols. i.- x.

DIVISION II.—Reports of Learned Societies and Institutions

AMERICAN Academy of Arts and Sciences. Proceedings: Vols. xxxiv., xxxvi.- xliii. XLIV

AMERICAN Association. Proceedings: Vols. xxxi., xxxiii. and xl.-xlix.

AMERICAN Philosophical Society, Philadelphia. Proceedings:

Vol. xlviii. and Vol. xlix., January-September. Vol. List of Members, 1910.

ASTRONOMICAL Society of the Pacific, Publications: Vols. i.- 2016.

ASTRONOMICAL Society of Wales, Journal: Vols. i, ii.

ASTRONOMICAL and Physical Society of Toronto. Transactions: 1890-1905, bound in duplicate. (See also Royal Astronomical Society of Canada).

ASTRONOMICAL and Astrophysical Society of America. Reports of Meetings (unbound).

British Association for the Advancement of Science. Reports: 1833, 1835, 1835, 1858, 1866-68, 1884, 1897 (2 copies) 1898-1900, 1902-12 (See also Div. XVI.).

BRITISH Astronomical Association. Journal: Vols. i.- xix., and General Index: Vols. i.-xviii.

Memoirs: Vols. i.-xv. 9 xvm. 9

CANADIAN Institute Publications: 1852-1909.

Canadian Journal: Vols. i. (Nos. 1-5 and 9-12), ii., iii. (4to). Canadian Journal: Vols. i.- x. and xii.- xv. (8vo ed.)

Proceedings: Vols. i., Parts 1 and 3 (unbound), ii., iii.; iv.

Fasc. 1 (unbound), and v.- vii. Proceedings, New Series: Vols. i. and ii.

Transactions: Vols. i.- vii., (inclusive).

CHICAGO Academy of Sciences. Bulletin: Vols i.-ii.; iii., Nos. 1-3, and Vol. vii., Part 1.

Hamilton Association. Journal and Proceedings: 1882-3, 1889-96, 1901-2, 1902-3, 1907-8.

Proceedings of the Jubilee Celebration, November 8, 1907.

JOHN CRERAR Library: Annual Report, 1906-9.

List of Books in the Reading Room, 1909.

List of Books exhibited December 30, 1907 to January 4, 1908. Hand Book for 1907.

A List of Current Medical Periodicals and Allied Serials, 1909.

LAVAL UNIVERSITY. Annuaire, 1908-9, 1909-11.

LEEDS Astronomical Society. Journal and Transactions: 1893-1901, 1903, 1906, 1909. 10, 11,

MICHIGAN Academy of Science. Reports: 1903 and 1905-1909-1911 NATURAL History Society of New Brunswick. Bulletin: 1885-96

(bound), Vol. v. Part 5, and Vol. vi., Parts 1 and 2.

NEW YORK Academy of Sciences. Annals: Vols. viii. - xi.; xii. (Parts 2 and 3), xiii. - xviii.; xix. (Parts and 2).XX, XXIII

Transactions: Vols. xiv.-xvi. Memoirs: Vol. i., Parts 1 and 2.

Nova Scotian Institute of Science. Proceedings and Transactions: Vol. i., Second Series: Vol. xii. Part 1-3

ONTARIO Educational Association. Proceedings: 1897-8.

PHILOSOPHICAL Society of Washington. Bulletin: Vols xiii. and xiv., Vol. xv. (incomplete), and unbound sections.

ROCHESTER Academy of Science. Proceedings: Vols. iii. and iv. (incomplete).

ROYAL Astronomical Society. Monthly Notices: Vols. x. Lying

inclusive. General Index: Vols. i.- lii. Memoirs: Vols. v.-lvii. (bound), Vols. lviii., lix., Parts 1-45 LX. (unbound). General Index: Vols. i.-xxxviii. and xxxix.-

ROYAL Astronomical Society of Canada (see Div. IV.). Journal: Vols. i.-iii., Vol. iv. Nos. 1 to 5. (See also Astronomical and Physical Society of Toronto). Why VI. Loon cach was

ROYAL Society of Canada. Proceedings and Transactions: Vols. i. xii. Second Series: Vols. i. xii. Third Series: Vols. i. and ii. General Index to First and Second Series.

ROYAL Society of Edinburgh. Proceedings: Vols. xx.-xxii. xxIII ****., xxvi.- xxviii.xxx

ROYAL Society of London. Proceedings: Vols. i.-lxxxi. inclusive.

ROYAL Society of Queensland. Proceedings: Vols. xx.-xxi; xxii. (Part 1).

ST. Louis Academy of Science. Transactions: Vols. xvi. (parts 8 and 9), xvii. (parts 1 and 2), xviii. (part 1).

SMITHSONIAN Institution. Reports: 1879, 1880, 1889, 1890. (See also Division III.)

Società degli Spettroscopisti Italiani. Memorie: Vols. xxiii.-*** (inclusive). L XL (brand

Société Astronomique de France. Bulletin: 1902-4, 1906-8. Société Belge d'Astronomie. Bulletin: 1903-1908.

SPECOLA VATICANA. Pubblicazion: Vols. i.-v. Catalogo Fotografico Stellare: Vol. i.

University of Illinois Studies. Bulletin: Vol. iv., No. 25.

WISCONSIN Academy of Sciences. Transactions: Vols. x.-xiv.; xv., part 1 and 2; xvi., part 1, Nos. 1-6 (unbound).

Pomma College, Astron Soc "Public" VA I (6mm) VAII (injuguen

DIVISION III. Publications of Observatories

ABBADIA OBSERVATORY. Observations with Meridian Circle: Vols. i. wiii, X, (When a TameVA).

ALGER OBSERVATORY: Catalogue Photographique du Ciel: n troduction; Tome v., Fasc. 1; vi., Fasc. 1 and 2; vii., Fasc. 1.

ALLEGHENY OBSERATORY. Miscellaneous Scientific Papers: New Series, Nos. 1-20.

BORDEAUX OBSERVATORY. Catalogue Photographique du Ciel: Vols. i., iia., iib.

CAMBRIDGE OBSERVATORY. Annual Report of the Observatory Syndicate: 1904, June 1—1905, April 30; 1906, May 19—1907, May 18; 1907, May 19—1908, May 18; 1908, May 19—1909, May 18.

Observations: Vol. xxiv., part 1.

CAPE OBSERVATORY, Cape of Good Hope. Annals: Vols. iii.-vii. and ix.

Report of His Majesty's Astronomer: 1895 to 1907, and 1909. Independent Day Numbers: 1897, 1901, 1905-1909.

Cape Catalogue: 1885-1895, 1905-6.

Cape General Catalogue: 1900.

Cape Catalogue of Astrographic Standard Stars: 1900. CHEVREUSE OBSERVATORY. Meteorologie: 1903-1905.

CHICAGO UNIVERSITY Decennial Publications. Measures of Double Stars: Yerkes Observatory in 1900 and 1901.

The Spectra of Stars of Secchi's Fourth Type: Yerkes Observatory, 1903.

Photography with Forty-Inch Refractor and Two-Foot Reflector: Yerkes Observatory, 1904. (See also Yerkes Observatory).

CINCINNATI OBSERVATORY. Publications: 1878-86; 1887, 91-2; and unbound Nos. 13 to 16.

COLORADO COLLEGE Studies and Publications.

Engineering Series: Vol. i., Nos. 3 and 4. Language Series: Vol. ii., Nos. 18-21.

Science Series: Vol. xi., Nos. 33-53.
COLUMBIA UNIVERSITY Observatory. Contributions: Nos. 1-3, 6-9, 11-17, 19-27.

DOMINION ASTRONOMICAL Observatory. Record of the Earthquake Station: Nos. 1-10.

Report of the Chief Astronomer: 1905-1908.

DUNSINK OBSERVATORY. Astronomical Observations and Researches: Part 8.

ENCYCLOPÆDIA BRITANNICA.

FLOWER ASTRONOMICAL Observatory. (See University of Pennsylvania).

GEODETIC SURVEY of South Africa.

Vol. i., Report of Survey Cape of Good Hope. Vol. ii.; Report of Survey Cape of Good Hope.

Vol. iii., Report of Survey in Rhodesia.

Vol. v., Report of Survey in Transyaal and Orange River Colony

GEORGETOWN COLLEGE OBSERVATORY. Observations:

Vol. i., First Chart and Catalogue for Observing Novi Persei. Vol. ii. Second Chart and Catalogue for Observing Novi Persei. Vol. iii., Chart and Catalogue for Observing Nova Geminorum. Vol. iv., Preliminary Light Curve of Nova Persei from Febru-

ary 22 to May 1, 1901.

Vol. v., Observations of Variable Stars made in the years 1884-1890.

Vol. vi., Supplementary Notes to the Atlas Stellarum Variabilium.

GREENWICH OBSERVATORY. (See Royal Observatory).

HAMILTON COLLEGE Observatory. Heliographic Positions of Sun-Spots Observed by Dr. C. H. Peters from 1860 to 1870.

HARVARD COLLEGE OBSERVATORY. Annals (bound): Vols. xii., xiii., xv.-xix,, xxi.-xlvi, xlviii.-li., lviii., lx-LXII, LXIV-LXII. Annals (unbound): Vols. xi., Part 2; xx., Part 2; xlyii., Part 1/2 lii., Part 1-and 2; liii - lv., Part 1 and 2; lvi., Parts

1-4; Ivii., Part 1 and 2; Iix. Parts 1-5; Ixi., Parts 1 and 2; lxii, Part 1; lxiv., Nos. 1-6; lxviii No. 1; lxix., No. 12; lxxi M. 18.18 M

Circulars: Nos. 1 to 100 (bound).

Report of Director: Nos. 37-54, 56-64.

Telegraphic Cipher Code.

Miscellaneous Papers: 1888-1895.

Bulletin for years 1902-1905.

HAUTE-GARONNE. (See Toulouse Observatory).

INSTITUTE de France Académie des Sciences. Conférence Astrophotographique internationale de Luillet, 1900.

Circulaires, Nos. 9, 10, 12.

Réunion du comité international permanent pour l'éxécution de la carte photographique du ciel tenue a l' Observatoire de

Paris en Mai 1896, 1900.

Extraits des Comptes rendus des Seances de l'Academie des Sciences: Vols. cxxxvi, page 1505, June, 1903; cxxxv., page 73, July, 1902; cxxix., July 3, 1899; cxxviii., June 26, 1899. (See also Abbadia Observatory).

Leop.-Carol. Deutschen Akademie der Naturforscher: Band lxxxv., No. 2.

KEW OBSERVATORY. (See National Physical Laboratory).

KIEL OBSERVATORY. Publications: Vols. i.-v.; vi., (Part 2), vii., (Part 1), viii.- xii.

KÖNIGSTUHL-HEIDELBERG Observatory. Publikationen: Vol. i.

LEANDER McCormick Observatory. Publications: Vol. i., Parts 1, 3-7.

Lehigh University. Astronomical Papers: Vol. i, Part 1. Lick Observatory. Bulletin: 1901-2, 1902-4, 1904-5, 1905-8.

Publications: Vols. i.-vi., viii., ix., Parts 1-3, x.
Report of Observations made on Mount Hamilton.
Report to the Trustees of the "James Lick Trust"

Report to the Trustees of the "James Lick Trust."
Reports on the Observations of Total Eclipse of the

Reports on the Observations of Total Eclipse of the Sun, December 21-22, 1889; January 1, 1889.

Contributions: Vols. iii.- v.

LISBON ROYAL Observatory. Observations of Eclipses of the Moon at the Royal Observatory of Lisbon.

Corrections of the Right Ascensions of some Stars in the Berlin Year Book.

Meridian Observations of the Planet Mars during the Opposition of 1892.

LOWELL OBSERVATORY. Annals: Vols. i.-iii.

MADRAS OBSERVATORY. Taylor's General Catalogue of Stars for the Equinox, 1835 0. (See also Div. IV.)

Manila Central Observatory. Bulletin of the Weather Bureau: 1904-1908, 1909, 1910, January to May.

Annual Report: 1903, Parts 1-3; 1904, Parts 1-3; 1905, Parts 1 and 2; 1906, Part 1; 1907, Part 1.

Catalogue of Violent and Destructive Earthquakes in the Philippines: 1599-1909.

Mirado Observatory, Baguio, Benquet, a new Meteorological-Geodynamic Station of the Weather Bureau.

MANILA METEOROLOGICAL Observatory. El Magnetismo-Terrestre en Filipinas.

MOUNT WILSON Solar Observatory. Contributions: 1 to 28. Some Opportunities for Astronomical Work with Inexpensive Apparatus: Geo. E., Hale.

NATIONAL PHYSICAL Laboratory (Kew Observatory). Reports of Observatory Department: 1901 to 1909.

NICE OBSERVATORY. Annales: Vols. i.-vi. inclusive. Atlas accompanying Annales Vols. i. and iii.

Observatoire Royal de Belgique. Annales: Vols. ix., Nos-2 and 3; x., xi., Nos. 1 and 2; xii., Part 1.

Serie, Physique du Globe: Vol. iii., No. 3.

Annuaire Astronomique pour 1907.

Paris Observatory. Rapport Annuel: 1892-95, 1897-1905, 1907-1909.

Catalogue Photographique du Ciel: Vol i. and ii.

Atlas Photographique de la Lune; Planches i.- xli. and xlviii.- liii.; also "A" to "G" and "I."

Atlas Photographique de la Lune: Fascicules 1 and 2.

POTSDAM ASTROPHYSICAL Observatory. Publications: Vols. vii., Part 1; xv., Part 2; xx., Parts 2-4; xix., Part 1.

Photograph. Himmelskarte. Katalog. Ergänzungen und Berichtigungen zu den Bd. 1, bis iv.

ROUSDON OBSERVATORY, Devon. Meteorological Observations: 1900, Vol. xvii.

Astronomical Observations: 1882-5.

Variable Star Notes: Nos. 2-6,

ROYAL ALFRED Observatory, Mauritius. Results of the Magnetical and Meteorological Observations for the years 1896, 1898-1906.

Annual Report of the Director: 1896-7, 1899, 1903, 1905-8. Mauritius Magnetical Reductions: (Published 1899).

ROYAL OBSERVATORY of Belgium. (See Observatoire Royal de Belgique).

ROYAL OBSERVATORY, Edinburgh. Astronomical Observations: Vol. xii., (1855-59).

ROYAL OBSERVATORY, Greenwich.

Observations: 1889-1907 and Appendix.

Astrographic Catalogue: 1900 0; 1900, Vol. ii.

Groombridge's Catalogue of Circumpolar Stars, 1810 0.

Determinations of Longitude: 1888-1902.

Reduction of Greenwich Meteorological Observations: Parts 3 and 4.

Photo-heliographic Results 1874-1885.

Observations of Eros 1900-1 for Determination of Solar Parallax. Greenwich Second Nine-Year Catalogue of Stars for 1900.

SMITHSONIAN INSTITUTION. Annals of Astrophysical Observatory: Vols. i. and ii. (See also Div. II.)

TACUBAYA, Observatorio Astronomico Nacional, Mexico. Annuair: 1908-10.

Observaciones Meteorológicas Practicadas at Tacubaya y Cuajimalpa in 1904, and during the year 1897.

Tokyo Observatory. Annales: Vol. ii., Part 1; iii., Parts 2-6; iv. Toulouse Observatory. Annales: Vols. i.-v. and vii.

Catalogue Photographique du Ciel: Vols. ii., Part 1; iv., Part 1; vi., Part 1; vii., Parts 1 and 3.

Bulletin de la Commission Météorologique du department de la Haute-Garonne: Tome i., 1901-5; Tome ii., Parts 1 and 2.

UNIVERSITY of Pennsylvania, Flower Astronomical Observatory. Publications: Vols. i., Parts 2 and 3; ii., Parts 1-3; iii., Parts 1 and 3.

U. S. Coast and Geodetic Survey. Reports: 1890, appendices Nos. 8 and 9; 1895, appendix No. 1.

U. S. NAVAL Observatory, Washington.

Observations: 1851-2, 1863-4, 1868-70, 1872-3, 1875, 1876, Parts 1 and 2; 1877-1890, appendix for 1890; 1891-2.

Magnetic Observations: 1888-9.

Publications: Vols. i.- iii., iv., Parts 1-3; iv., Part 4; (appendix 1, and v.)

Equatorial Reduction Tables.

Superintendent's Report: 1901-6, 1908-9.

Transit of Venus Papers: Parts 1 and 2 with atlas to Part 2; and Part 3, being Newcomb's "Tables of the Moon."

UTRECHT OBSERVATORY. Recherches Astronomiques: Tome iii. VASSAR COLLEGE Observatory. Publications: No. 1.

Washburn Observatory. Publications: Vols. ii.-v., vi., Parts 1-4; vii., Parts 1 and 2; viii., ix., x., Parts 1-3; xi., xii.

Washington Observatory. (See U. S. Naval Observatory).

West Hendon House Observatory. Publications: Nos. 2 and 3.

YALE OBSERVATORY. Transactions: Vols. i., ii., Part 1.

YERKES OBSERVATORY. Publications: Vols. i., ii.; iii., Part 1. Bulletins: 1, 2, 4-19. (See also Chicago University).

ZURICH OBSERVATORY. Publications: Vols. i.-iv.

DIVISION IV.— Almanacs, Tables, Star Charts, and Catalogues SECTION CATALOGUED UNDER AUTHOR

Algué, Rev. José. "The Cyclones of the Far East." 2nd rev. ed. Manila 1904.

BAILY, Francis. "Astronomical Tables and Formulæ. 1827.

BURNHAM, S. W. "A General Catalogue of Double Stars within 121° of the North Pole." Vols. i. and ii.

BURRITT. "Atlas designed to illustrate Burritt's Geography of the Heavens," 1856.

CARRINGTON, Richard C. "Catalogue of 3735 Circumpolar Stars observed at Redhill in the years 1854-55 and 1856 and reduced to mean positions for 1855.0."

CHANT, C. A., "The Canadian Astronomical Handbook," 1907, 1908.

CLARK, Latimer; and SADLER, Herbert. "Star-Guide." 1886. COFFIN, Professor J. H. C. "Star Tables of the American Ephemeris. 1869.

"Tables to Facilitate the Reduction of Places of the Fixed Stars." Second ed. 1873.

COTTAM, Arthur. "Charts of the Constellations." With Introduction and Notes. 1891.

Crossley, Edward; Gledhill, Jos.; and Wilson, J. M. "A Handbook of Double Stars." 1879.

FLAMMARION, Camille. "Annuaire Astronomique et Meteorologique pour 1902."

"Atlas Astronomique de poche. . . . contenant 18 cartes et explications."

FORCE, Peter. "Record of Auroral Phenomena Observed in the Higher Northern Altitudes." 1856.

HALL, Maxwell. "The Rainfall of Jamaica" - thirteen maps showing the average rainfall in each month and during the year. 1892.

HILDERBRANDSSON, H., and others. "International Cloud Atlas.'' 1896.

HILL, Geo. W. "Tables of Venus." 1872.

Kelly, P. "Astronomical Computations": comprising new tables, etc. 1812.

KLEIN, Hermann J. "Star Atlas." 1893.

GEELMUYDEN, H., and SCHRŒTER, J. Fr. "Meridian-Beobachtungen von Sternen in der Zone 65°-70° Nordlicher Declination." 1909.

Greenwood, W. Nelson. "Kludonometric Tide Tables, etc." 1895-1904.

LEON, Luis G. "Catalogs de Nebulosas y Masas Estelares, etc." (2 copies). 1903.

LŒWY, M. M., and PUISEUX, M. P. "Atlas Photographique de la Lune." 1896.

LITTLEHALES, G. W. "The Progress of Science as Exemplified

in Terrestrial Magnetism." 1905.

MAYER, Tobias, and MASON, Charles. "Tables of the Motion of the Sun and Moon." 1770.
"Lunar Tables improved." 1787. (bound together).

MIREMONT, Comte de. "Popular Star Maps."

NEWCOMB, Simon. "Catalogue of 1098 Standard Clock and 7odiacal Stars."

"Astronomical Constants," 1895.

"The Uranian and Neptunian Systems investigated Washington Observations 1873. (app. 1).

"Researches on the Motion of the Moon." Washington Observations 1875, app. 2.

Peirce, Benjamin. "Tables of the Moon." 1865.

POOLE, Bros. "Celestial Handbook." Compiled by Jules A. Colas. 1892.

PROCTOR, Richard A. "Star Atlas." Ed. 5, 1886; ed. 12, 1887.

SCHOTT, Charles A. "Atmospheric Temperature Tables." (Smithsonian) 1876.

"Tables and Results of the precipitation in rain and snow in the U.S." 1872.

SCHUBERT, E. "Tables of Eunomia." 1866.

"Tables of Parthenope." 1871. "Tables of Melpomene." 1860.

TROMHOLT, Sophus. "Catalog der in Norwegen bis Juni, 1878.

Beobachteten Nordlichter. 1902. UPTON, Winslow: "Star Atlas," with explanatory text. 1896. WINLOCK, Joseph. "Tables of Mercury." 1864.

GENERAL CATALOGUE OF DIVISION IV.

AMERICAN Coasters' Almanac for 1884.

AMERICAN Ephemeris and Nautical Almanac: 1866, 1870-1884, (supplement to 1884), 1885, 1886 (supplement to 1886), 1887-1911.

Star List of the American Ephemeris, 1909. Stars for Navigators and Polaris Tables for 1910.

Star List of the American Ephemeris for 1910. (See also Astronomical Papers of the American Ephemeris).

AMERICAN Nautical Almanac for 1893.

ASTROGRAPHIC Catalogue 1900.0. The Oxford Section: Vols. i.-vi. (inclusive).

ASTRONOMICAL Figures. Illustrations of the Earth's Form; Solar System, etc."

ASTRONOMICAL Papers of the American Ephemeris. Vols. i., Parts 2, 3, 5, 6; ii.-viii. inclusive.

ATLANTIC Coaster's Almanac: 1885 to 1892—all in duplicate.

Berliner Astronomisches Jahrbuch. 1896-7, 1899-1912.

CHRISTIANIA Observatory. (See Geelmuyden and Tromholt.) DEPARTMENT of Marine and Fisheries, Canada. (See Meteorological Service.

Greenwood's Tide Tables. 1895-1904 inclusive.

Hicks' Almanac. 1894-7.

ILLUSTRATED London Almanac. 2 Vols. 1850-62, 1863-72.

MADRAS Observatory. Taylor's General Catalogue of Stars for the equinox 1835.0 from Observations made in Madras Observatory during the years 1831-42. Revised and edited by A. M. W. Downing. 1901.

METEOROLOGICAL SERVICE of the Dominion of Canada. Reports: 1874-77, 1888-9, 1895-1903, 1905-6. Clouds Observations: 1896-7.

NAUTICAL Almanac. 1844, 1851, 1855, 1857, 1859-61, 1863-7. 1869, 1870 (2 copies), 1872-3, 1875, 1877, 1879-80, 1883, 1886-90, (2 copies), 1891-2, 1895-1910, appendices to 1911, 1912 and 1913.

Oxford University Observatory. (See Astrographic Catalogue). PACIFIC Coaster's Almanac. 1885-6, 1888, 1890-1901, 1903-5.

PARIS Observatory. Atlas Photographique de la Lune: Parts 1 to 7, 9 and 10. (See also Div. III.)

ROYAL Astronomical Society of Canada. Photographs.

WHITTAKER'S Almanac. 1897, 1900, duplicate; 1901, duplicate.

DIVISION Va .- General Treatises, Text-Books

ADAMS, George. "Astronomical and Geographical Essays." London, 1789.

AIRY, Sir George Biddell. "Popular Astronomy:" A series of lectures delivered at Ipswich. London, 1891.

BALL, Sir Robt. "The Story of the Heavens." 1883.

BOWERS, J. E. "Suns and Worlds of the Universe: outlines of Astronomy according to the philosophy of Emanuel Swedenborg.'' 1899.

Brown, Robert. "Researches into the origin of the primitive constellations of the Greeks, Phœnicians and Babylonians." 2 Vols. 1899.

CHAMBERS, Geo. F., "A Handbook of Descriptive and Practical Astronomy.'' 4th edition, 3 Vols. 1889-90. "Descriptive Astronomy." 1867.

CLARKE, C. C. "The Wonders of the Heavens, displayed in twenty lectures." 1821.

Comstock, Geo. C. "A Text-Book of Astronomy." 1901.

DICK, Thomas. "Celestial Scenery." 1888.

DOLMAGE, Cecil G. "Astronomy of To-Day." 1909.

FERGUSON, James. "Astronomy explained upon Sir Isaac Newton's Principles.' 1778. Another edition with Notes by Sir David Brewster. 2 Vols. 1817 and 1841.

FLAMMARION, Camille. "Popular Astronomy." Translated

by J. E. Gore. 1897.

GILLETT, J. A. and ROLFE, W. J. "Astronomy for Schools, etc." 1862.

GODFRAY, Hugh. "A Treatise on Astronomy." 4th ed. 1886.

GORE, J. Ellard. "The Visible Universe." 1893.

"An Astronomical Glossary." 1893.

"Studies in Astronomy." 1904.

GUILLEMIN, Amédée. "The Heavens: an illustrated Handbook of Popular Astronomy." Edited by J. N. Lockyer and R. A. Proctor. 1883.

Guy. "Elements of Astronomy and an abridgment of Keith's new treatise on the use of the Globes." 30th edition. 1860.

Hamilton, Joseph. "Our Own and Other Worlds." 1903.
Hamilton, J. C. "The Great Centre: an Astronomical Study." 1892.

HENDERSON, Rev. Alex. C. "Popular Introduction to Astronomy." 1905.

HERSCHEL, Sir J. F. W. "Qutlines of Astronomy." Two copies. 1860 and 1887.

HOLDEN, Edward S. "The Earth and Sky." 1901.

"Elementary Astronomy." 1899.

Howe, Herbert A. "A Study of the Sky." 1897. LANGLEY, S. P. "The New Astronomy," 1889. LARDNER, Dion, "Popular Astronomy." 1856.

"Handbook on Natural Philosophy and Astronomy." 1858.

LOOMIS, Elias. "Treatise on Astronomy." 1887.

MAILLARD, Louis. "Cours d' Astronomie." Tome i. 1906.

MAIN, Robert. "Rudimentary Astronomy." 1874.

MITCHEL, O. M. "The Orbs of Heaven."

"Popular Astronomy." 1860.

Popular Astronomy." Revised edition.

Moulton, F. R. "An Introduction to Astronomy." 1906.

NEWCOMB, Simon. "The Stars: a study of the Universe." 1902.

"Astronomy for everybody." 1903.

NEWCOMB, Simon, and HOLDEN, Edw. S. "Astronomy." 6th edition. 1889.

NORTON. Wm. A. "Elementary Treatise on Astronomy." 1845.

OLMSTED, Denison. "Letters on Astronomy." 1848.

"Introduction to Astronomy." 2 copies. With supplement by E. B. Mason, 1854; and another edition 1844.

Poor, Chas. Lane. "The Solar System." A study of recent observations, 1908.

PROCTOR, Richard A., and RANYARD, A. Cowper. "Old and New Astronomy." 1892.

TAYLOR, Henry. "A System of the Creation of Our Globe."

9th edition, revised and enlarged. 1836. THORNTON, John. "Physiography." Advanced. 1901.

TODD, David P. "A New Astronomy." 1897.

TURNER, H. H. "Modern Astronomy." 1901.

VINCE, Rev. S. "Complete System of Astronomy." 2 Vols. 1797.

WALLACE, Alfred Russel. "Man's Place in the Universe." 1903.

Young, Charles A. "Elements of Astronomy: a text-book." Revised edition. 1897.

"A Text-book of General Astronomy for Colleges and Scientific Schools." 1898.

"Lessons in Astronomy." Revised edition. 1903.

"Manual of Astronomy." 1909.

X The Intan Typhen, Towall of Essay or Tolor ording Wieward Engelman

Star brugall Agai by Obott Wortyon

DIVISION Vb.—Bibliography, History

AIRY, Sir George Biddell. "Autobiography." Edited by Wilfrid Airy. 1896.

ASTRONOMISCHER Jahresbericht. (See Wislicenus).

BAILY, Francis. "An Account of the Rev. John Flamsteed, the first Astronomer Royal, compiled from his own manuscripts and other authentic documents never before compiled . . . his catalogue of Stars," 1835.

BALL, Sir Robert. "Great Astronomers." 1895.

BERRY, Arthur. "History of Astronomy." 1898.
BLAKE, John F. "Astronomical Myths," based on Flammarion's "History of the Heavens," 1877.

CAMPBELL, Lewis. "Life of James Clerk Maxwell, with selections from his correspondence and occasional writings." 1884.

CLERKE, Agnes M. "The Herschels and Modern Astronomy." 1901.

"History of Astronomy during the Nineteenth Century."

2nd edition. 1887.

CORTIE. A. L. "Father Perry, the Jesuit Astronomer." 1890.

DREVER, J. L. E. "Tycho Brahe." 1890.

FAHIE, J. J. "Galileo:" his life and works. 1903.

GLAZEBROOK, R. T. "James Clerk Maxwell and Modern Physics." 1901.

GRANT, Robert. "History of Physical Astronomy." 1852. HALL, Angelo. "An Astronomer's Wife." (The biography

of Angeline Hall). 1908.

HOLDEN, Edward S. "Stories of the Great Astronomers." 1901.

LOCKYER, Sir Norman. "Stonehenge and other British Stone monuments, astronomically considered." 1906.

LODGE, Sir Oliver. "Pioneers of Science." 1893.

LOOMIS, Elias. "Recent Progress of Astronomy." 1856.

MACPHERSON, Hector. "A Century's Progress in Astronomy." 1906.

MAUNDER, E. W. "The Astronomy of the Bible." 2nd edition. 1908.

"The Royal Observatory Greenwich." 1900.

McKendrick, John Gray. "Hermann Ludwig Ferdinand von Helmholtz.'' 1899.

Newcomb, Simon. "Reminiscences of an Astronomer." 1903. SALMON, Rev. S. D. F., and others. "Christian Men of Science."

Schiaparelli, Giovanni. "Astronomy in the Old Testament." 1905.

Thompson, Silvanus P. "Michael Faraday, His Life and Work." 1901.

Emplement to Drenn al- Cata Rememble Liter aller reditor should Boniles Stormer I History et cape Observatory, Sin David Soll TURNER, H. H. "Astronomical Discovery." 1904. WISLICENUS, Walter F. "Astronomischer Jahresbericht." Vols. i.- xi.

DIVISION VI .- Spherical Astronomy, Geodesy

BARLOW, C. W. C., and BRYAN, G. H. "Elementary Mathematical Astronomy." 1893.

Brunnow, Francis. "Spherical Astronomy." 1865.

CHAUVENET, Wm. "Spherical and Practical Astronomy." 2 Vols. 1887.

HAYFORD, John F. "A Text-Book of Geodetic Astronomy." 1904.

Newcomb, Simon. "Compendium of Spherical Astronomy." 1906.

Poincare, H. "Cours d' Astronomie Générale." 1904-5. Pratt, John H. "On Attractions, Laplace's Functions, and the Figure of the Earth." 1868.

DIVISION VII.--Theoretical Astronomy, Celestial Mechanics

BAUSCHINGER, Julius. "Die Bahnbestimmung der Himmelskorper.'' 1906.

CARR, Nathan T. "The Sun: its constitution, its phenomena, its condition." 1883.
COFFIN, J. H. C. "Theoretical Navigation; being class lectures

delivered at the U.S. Naval Academy, Annapolis, Maryland, 1854.'

CROLL, James. "Stellar Evolution and its relation to Geological Time." 1889.

DREYER, J. L. E. "History of the Planetary Systems from Thales to Kepler.'' 1906.

HALE, George Ellery. "The Study of Stellar Evolution."

1908.

KIRKWOOD, Daniel. "Comets and Meteors." 1873.

"Meteoric Astronomy." 1867.
"Cometary Astronomy." 1861.

KEDZIE, J. H. "Solar Heat, Gravitation and Sun Spots." 1886. KERIGAN, Thomas. "A Treatise on Eclipses and the Theory of Tides." 1844.

LOCKYER, Sir Norman. "The Meteoritic Hypothesis." 1890.
LYNN, Wm. Thynne. "Celestial Motions." 1894.

Moulton, F. R. "An Introduction to Celestial Mechanics." 1902.

D'OPPOLZER, Théodore. "Traité de la Determination des Orbites des Comètes et des Planetes." Vol. i. 1886.

Poincare, H. "Leçons de mécanique céleste professées à la Sorbonne." 1905.

Major, how then are draph of Buch I hold & Systems it is Bickertin der Theories das Midom Soliel Bester The Tider, Morely

SAINT-BLANCAT; D. "Action d'une Masse Intramercurielle sur la Longitude de la Lune." 1907.

SEE, T. J. J. "Evolution of the Stellar Systems." Vols. i., ii. 1896 and 1910.

Souchon, Abel. "Traité D'Astronomie Théorique." 1891. STIRLING, William. "New Theories in Astronomy." 1906.

TAYLOR, F. B. "The Planetary System: a study of its structure and growth." 1903.

WILLIAMS, W. Mattieu. "Current Discussions in Science. (2 copies). 1882

DIVISION VIII.

Practical Astronomy, Instruments, Methods of Observation

Bownitch, Nathaniel. "American Practical Navigator." 1886. CAMPBELL, W. W. "Elements of Practical Astronomy." 1904. CHAMBERS, Geo. F., and SMYTH, Sir Wm. H. "A cycle of

Celestial Objects, observed, reduced and discussed by Admiral Sir Wm. Henry Smyth.'' 2nd edition. 1881.

CHEYNE, C. H. H. "On the Planetary Theory." 1878. CLERKE, Agnes M. "The System of the Stars." 1st and 2nd editions. 1890 and 1905.

DENNING, W. F. "Telescopic Work on Starlight Evenings." 1891.

DICK, Thomas. "The Practical Astronomer." 2 copies. 1888. "The Telescope and Microscope."

DOOLITTLE, C. L. "Practical Astronomy as applied to Geodesy and Navigation" 1903.

GORE, J. Ellard. "Astronomical Lessons." 1890

JACOBY, Harold. "Practical Talks by an Astronomer." 1902. KELVIN, Lord, (Sir Wm. Thomson). "Navigation." (A lecture at Glasgow, 1875). 1876.

LOCKYER, J. Norman. "Stargazing, past and present." 1878. Loomis, Elias. "Practical Astronomy." 1860.

MAIN, Rev. Robert. "Practical and Spherical Astronomy." 1863.

Mason, E. P. "Introduction to Practical Astronomy." (Designed as supplement to Olmsted's Astronomy). 1843.

MAUNDER, E. W. "Astronomy Without a Telescope." 1903. NARRIEN, John. "Practical Astronomy and Geodesy." 1845. NOBLE, Wm. "Hours with a Three-Inch Telescope." 1887.

SERVISS, Garrett P. "Astronomy with an Opera-Glass." 3

copies. 4th edition 1890 and 1892; 8th edition 1901. "Pleasures of the Telescope." 1901.

SMYTH, W. H. "A Cycle of Celestial Objects." (See Chambers, Geo. F.),

Souchon, Abel. "Traité D'Astronomie Pratique." 1883.

· Clocks, Voteher 1 Bells by Ind Grim theyou I Wantied determing by U. P. Symbols.

No

TODD, David P. "Stars and Telescopes." 1900.
TURNBULL, M. "Description of a New Celestial and Terrestial Globe." 1892.

WARNER and SWASEY. "A Few Astronomical Instruments."

WARREN, Henry White. "Recreations in Astronomy, with directions for practical experiments and telescope work." 1879.

WEBB, Rev. Thos. W. "Celestial Objects for Common Telescopes." 2 vols. 1893-4.

" Celestial Objects, etc." 4th edition. 1881.

"Manuscript Note Book." Presented to Library by Mr. G.

Parry Jenkins in 1910).
WILLIAMS, A. Stanley. "Zenographical Fragments." Vols. i. and ii. 1889 and 1900.

DIVISION X. Observations, Descriptive Astronomy, Astrophysics

ALLEN, Richard Hinckley. Star-Names and their Meanings." 1899.

ARRHENIUS, Svante. "The Life of the Universe," as conceived by man from the earliest ages to the present time. Vols i. and ii. 1909.

"Worlds in the Making." Translated by Dr. H. Borns.

ASHE, Commander. "Proceedings of the Canadian Eclipse Party 1869.''
BALL, Sir Robt. "The Story of the Sun." 1901.

"In the High Heavens." 1894.

BALY, E. C. C. "Spectroscopy." 1905.
BOQUET, F. "Les Observations Meridiennes." (Théorie et

Pratique). Vols. i. and ii. 1909.

Brenner, Leo. "Mars-Beobachtungen 1896-7." Berlin, 1898. CHAMBERS, Geo. F. "The Story of the Comets." Simply told for general readers. 1909.

"The Story of Eclipses." 1899.
"The Story of the Stars." 1901.

"The Story of the Solar System." 1901.

CLERKE, Agnes M. "Problems in Astrophysics." 1903.

"Modern Cosmogonies." 1905.

CLERKE, Ellen M. "Jupiter and his Systems." 2 copies. 1892.

DURKIN, Edwin. "The Midnight Sky, Familiar Notes on the Stars and Planets." 1870.

ELGER, Thomas Gwyn. "The Moon." A full description and Maps of its principal physical features. 1895.

FAUTH, Philip. "The Moon in Modern Astronomy." Introduction by J. E. Gore.

Birgel, Bumo H. Astronomy In all Bogust I be desiration Montages

FLAMMARION, Camille. "La Planete Mars." Vols. i. and ii., 1892, and 1909.

"Wonders of the Heavens." Translated by Mrs. Norman Lockyer. 2 editions. 1871 and 1880.

" Excursions dans le Ciel."

Forbes, George. "The Transit of Venus." 1874.

GALL, Rev. James. "Easy Guide to the Constellations, with. . . . Atlas of the Stars.' 1900.

GARBASSO, A. "Vorlesungen über Theoretische Spectroskopie." 1906.

GORE, J. Ellard, "The Scenery of the Heavens." 2nd edition. 1892.

"Southern Stellar Objects for Small Telescopes." 1877.

"Star Groups." 1891.
HEATH, Thomas. "The Twentieth Century Atlas of Popular Comprising in twenty-two plates a complete series of illustrations of the heavenly bodies. 1903.

HILL, Royal. "Stars and Constellations." A new method by which all the more conspicuous stars, constellations, and other objects of interest in the heavens, that are visible to the naked eye, can be easily and certainly identified. 3rd edition. 1894.

Honore, Carlos. "El Sol." 1897.

HUGGINS, Sir Wm. and Lady. "Atlas of Representative Stellar Spectra." 1899.

"The Scientific Papers of Sir Wm. Huggins." (Being Vol. ii. of "Atlas of Representative Stellar Spectra.") 1909.

"Spectrum Analysis: as applied to the heavenly bodies." 1866.

IRVING, Edward. "How to Know the Starry Heavens." 1904.

JAMIESON, Alex. "Celestial Atlas." 1822.

KIRCHHOFF, G. "Researches on the Solar Spectrum and the Spectra of the Chemical Elements." Translated by H. E. Roscoe. 1862.

KOBOLD, Hermann. "Der Bau des Fixsternsystems." 1906. KRIEGER, J. N. "Mond-Atlas:" Entworfen nach den Beo-

bachtungen an der Pia-Sternwarte in Trieste. Vol. i. 1898. LOCKYER, Sir Norman. "Recent and Coming Eclipses: being Notes on the Total Solar Eclipses of 1893-6 and 1898."

Long. "Astronomical Plates."

Lowell, Percival. "Mars." 1895.

"Mars and Its Canals." 1906.

"Mars as the Abode of Life." 1908. "The Evolution of Worlds." 1909.

Lynn, Wm. Thynne. "Remarkable Comets." 1901.

ofactor, H Astronomy, a Popular Hand book.

MARTIN, Martha Evans. "The Friendly Stars." (With diagrams). 1907.

MAUNDER, E. W. "The Indian Eclipse, January 22, 1898." 1899.

"The Total Solar Eclipse of May, 1900." 1901.

MEE, Arthur. "Observational Astronomy." (2 copies). 1st edition, 1893; 2nd edition, 1897.
MITTON, G. E. "The Children's Book of Stars." 1908.

MORSE, Edward S. "Mars and Its Mystery." 1906.

Move, Professor. "À la Poursuite d'une ombre, l'eclipse de soleil du 30 août, 1905."

NASMYTH, Jas., and CARPENTER, Jas. "The Moon: considered as a Planet, a World, and a Satellite." 1874.

NEISON, Edmund. "The Moon, and the Condition and Configuration of its Surface." 1876.

NICHOL, J. P. "The Architecture of the Heavens." (2 copies). 5th and 9th editions. 1845 and 1851.

PICKERING, Wm. H. "Lunar and Hawaiian Physical Features Compared.'' 1906. "The Moon." 1903.

PROCTOR, Mary. "Giant Sun and His Family." 1906. "Stories of Starland." 1906.

PROCTOR, Richard A. "Saturn and Its System." (2nd edition). 1882.

"'The Expanse of Heaven." 1905.

ROBERTS, Isaac. "Photographs of Stars." (Selections of photographs of stars, star-clusters and nebulæ, together with information about the instruments and methods employed in celestial photography). Vols. i. and ii. (2 copies).

Roscoe, Henry E. "Spectrum Analysis." 3rd edition. 1873.

ROSCOE, Henry E., and Schuster, Arthur. "Spectrum Analysis." 4th edition. 1885.

SALET, P. "Spectroscopie Astronomique." 1909.

SCHEINER, J. "Astronomical Spectroscopy." (A translation of "Die Spectralanalyse der Gestirne," revised and enlarged by E. B. Frost). 1898.

SCHELLEN, H. "Spectrum Analysis." (Translated by Jane and Caroline Lassell and edited by Wm. Huggins). 1872.

SHALER, N. S. "Comparison of the Features of the Earth and the Moon." 1903.

STEELE, Joel D. "New Descriptive Astronomy." 1884.

SWIFT, Lewis. "Simple Lessons in Astronomy." 1890.

TODD, Mabel Loomis. "Total Eclipses of the Sun." 2 copies. 1894 and 1900.

"Uber den neuen Stern im Fuhrmann." 1893. VOGEL, H. C.

Describture Materology " A Beginner; Stand Porth 2 ween) ALT. The Spelled eyes that work * Prote Rd Ou Place among

WALLACE, Alfred Russel. "Is Mars Habitable?" 1907.

WATTS, W. M. "An Introduction to the Study of Spectrum Analysis." 1904.

Webb, Rev. Thos. W. "The Sun: a familiar description of his phenomenon." 1885.

WILLARD, E. "Astronography, or Astronomical Geography: with the use of the Globes." 1856.

DIVISION XI.—Ancient Astronomy

DERHAM, W. "Astro-Theology." (2 copies). 3rd and 9th editions. N. D. and 1750.

GALILEO. "Opera." Tome i. and ii.

LOWTHROP, John. "Philosophical Transactions abridged."

Vols. i. and ii. 1705.

Wells, Edward. "The Young Gentleman's Astronomy."

(2nd edition). 1718. WITTIE, Robert. "Ouranoscopia: or a Survey of the Heavens." Anust Sparish Manusorpt motetimen

DIVISION XIII .- Works on Physics

"The Mechanics of the Earth's Atmos-ABBE, Cleveland. phere.'' 1910.

AIRY, Sir George Biddell. "On the Undulatory Theory of Optics." London, 1866.

ARCHIBALD, Douglas. "The Story of the Earth's Atmosphere.'' 1901.

BESANT, W. H. "Hydrostatics and Hydrodynamics." 1859.

BLACK, F. A. "Terrestial Magnetism and Its Causes." 1905. BLONDLOT, R. "N" rays: a collection of papers communicated to the Academy of Science, with additional notes and instructions for the construction of phosphorescent screens. Translated by J. Garcen. 1905.

/ CAVALLO, Tiberius. "A Treatise on the Nature and Properties of Air.'' 1781.

CHAMBERS, Geo. F. "The Story of the Weather." 1900.

CLAUSIUS, R. "The Mechanical Theory of Heat." Translated by W. R. Browne. 1879.

CLAYDEN, Arthur W. "Cloud Studies." 1905. CUNYNGHAME, H. H. "Time and Clocks:" a description of Ancient and Modern methods of measuring time. 1906.

DARWIN, Geo. Howard. "The Tides." 1898.

DESCHANEL, A. Privat. "Natural Philosophy." 4th edition. Translated by J. D. Everett. 1878.

DOLBEAR, A. E. "Matter, Ether and Motion." English edition edited by Prof. Lodge. 1903.

Duncan, R. K. The New Knowledge." 1905. drocheming Starte "Conferency . Chemis Physique 1912 Cheese E. "Studies in Toxishead Magnetion 1912 DUTTON, Clarence Edward. "Earthquakes: in the light of the new seismology." 1905.

Fessenden, Reginald Aubrey. "A determination of the nature of the electric, and magnetic qualities, and of the density

and elasticity of Ether." 1900. FOURNIER, d'Albe E. E. "Electron Theory:" a popular introduction to the new theory of electricity and magnetism.

GIBSON, Chas. R. "Scientific Ideas of To-Day Popularly Explained." 2nd edition. 1909.

GRIFFIN, Wm. N. "A Treatise on Optics." 2nd edition. 1842. HAANEL, Eugene. "Galvanometric method for determining the Earth's magnetism, and its oscillations." 1873.

HAGENBACH, August, and Konen, Heinrich. "Atlas of Emission Spectra." (Authorized Eng. edition by Arthur S. King. 1905.

HARRINGTOM, Mark W. "About the Weather." 1901.

HIGGS, Paget. "The Electric Light in its Practical Application." 1879.

Hogg, Jabez. "Elements of Experimental and Natural Philosophy." 1861.

KELVIN, Lord, (Sir Wm. Thomson). "Baltimore Lectures on Molecular Dynamics and the Wave Theory of Light." 1904.

KELVIN, Lord, (Sir Wm. Thomson) and P. G. TAIT. (See Thomson). "Natural Philosophy." Vol. i. 1867. LAMB, Horace. "The Motion of Fluids." 1879.

LARMOR, Joseph. "Æther and Matter." 1900.

LEFROY, Sir J. H. "Diary of a Magnetic Survey of . . . Canada . . . 1842-44.'' 1883.

Lodge, Sir Oliver. "Life and Matter: a criticism of Professor Hæckel's 'Riddle of the Universe.' '' 1905. "The Ether of Space." 1909.

LOUDON, James and CHANT, C. A. "Elementary Mechanics." 1892.

MAXWELL, James Clerk. "Electricity and Magnetism." Vols. i. and ii. 1873.

McLennan, Evan. "Cosmical Evolution." 1890.
Mendeléeff, D. "A Chemical Conception of the Æther." 1904.

MICHELSON, A. A. "Light-Waves and Their Uses." (Decennial Publications of the University of Chicago: Second Series. Vol. iii). 1903.

MILLER, W. H. "Elements of Hydrostatics." (4th edition). Munro, John. "The Story of Electricity." 1899.

NEWTON, Sir Isaac. "Principia." (Translated by Andrew Motte). 1846.

The Evolution of the Surran toullevique; Practical Talks of an Astronomer : Radio-activity 1 xpertions. and W. Meteorolog 4: 14th 10

PARKINSON, S. "Mechanics, Treatise on." 1863.
POINCARE, H. "Science and Hypothesis." (Translation by G. B. Halsted). 1905.

"The Value of Science." (Authorized trans. and introduction by Halsted). 1907.

PRESTON, Thomas. "The Theory of Light." 2nd edition. 1895.

REYNOLDS, Osborne. "The Sub-Mechanics of the Universe." (Papers on Mechanical and Physical Subjects: Vol. iii.).

ROUTH, Edw. John. "Dynamics of a System of Rigid Bodies." 3 copies. 1st, 2nd and 3rd editions. 1860-8 and 1877.
RUTHERFORD, E. "Radio-Activity." 1904.
Schuster, A. "Theory of Optics." 1904.

SMITHSONIAN INSTITUTION. "Short Memoirs on Meteorological Subjects." 1877.

STEVENSON, Alan. "Report... on illuminating Light-houses by means of Lenses." 1835.

STEWART, Balfour. "The Conservation of Energy." 1873.
STOKES, Geo. G. "Light as a means of Investigation." 1875.

TAIT, Peter Guthrie, and STEELE, Wm. J. "Dynamics of a Particle.'' 1865.

THOMSON, J. J. "Electricity and Matter." 1904.

THOMSON, Sir William. (See Lord Kelvin).

TODHUNTER, I. "History of the Mathematical Theories of Attraction and the Figure of the Earth." 2 Vols. 1873. "On Analytical Statics." 1858.

WALKER, Edward. "Terrestrial and Cosmical Magnetism." -1866.

WHEELER, W. H. "A Practical Manual of Tides and Waves."

WHETHAM, W. C. D. "The Recent Development of Physical Science." 1904.

WILKINSON, C. H. "Elements of Galvanism." 2 Vols. 1806.

Wood, Robert W. "Physical Optics." 1905.

Wood, De Volson. "The Luminiferous Æther." 1886.

WORTHINGTON, A. M. "The Splash of a Drop." 1895.

DIVISION XIV. Works on Mathematics

ALDIS, W. Steadman. "Elementary Treatise on Solid Geometry." 2nd edition. 1873.

BEASLEY, R. D. "Elementary Treatise on Plane Trigonometry.'' 1858,

BECKER, Geo. F., and VAN OSTRAND, C. E., "Hyperbolic Functions." (Smithsonian Mathematical Tables). 1909.

Photographic Absorption. Thomson Tair "A. Treatis on Natural Philosop 22 Library Catalogue,
BOOLE, George. "On the Calculus of Finite Differences." 1860.

"Differential Equations." 2 Vols. 1865.

BRIGGS, Wm., and BRYAN, G. H. "The Tutorial Dynamics." 2nd edition. 1906.

"The Tutorial Statics." 3rd edition. 1905.
DE MORGAN, Augustus. "Elements of Mathematics." 1854.

"On the Study and Difficulties of Mathematics." 1898. "Probability." [Library of Useful Knowledge].

Drew, Rev. W. H. "Conic Sections." 1862.

EUCLID. "Elements:" with the notes, etc., of Dr. Simson.

FERRERS, N. M. "Treatise on Trilinear Co-Ordinates." 1861. FILIPOWSKI, Herschell E. "Table of Anti-Logarithms." 1861. FROST, Rev. Percival, and WOLSTENHOLME Rev. Joseph. "Solid Geometry." 1863.

HALL, Rev. T. G. "On the Differential and Integral Calculus, and the Calculus of Variations." 4th edition. 1846.

HALSTED, George Bruce. "Rational Geometry." 1st edition. 1904.

LOOMS, Elias. "Analytical Geometry and the Differential and Integral Calculus." 10th edition. 1860.

MANNING, Henry. "The Fourth Dimension."

MORRISON, J. "Plane Trigonometry." 1880.

VAN OSTRAND, C. E., and BECKER, Geo. F. (See Becker).

/ Potts. "Elements of Euclid."

SALMON, George. "Analytic Geometry of Three Dimensions." 1865.

"Conic Sections." 1863.

TODHUNTER, I. "Conic Sections." 1862.

"Differential Calculus." 1860.

U" Researches in the Calculus of Variations." 1871.

"History of the Mathematical Theory of Probability." 1865.

"On the Integral Calculus." 1862.

"Analytical Geometry of Three Dimensions." 1858.

Vose, Geo. L. "Algebraic Problems." 1875.

WOLSTENHOLME, Joseph. "Mathematical Problems on Subjects in the Cambridge Course." 1867.

WRIGLEY, Rev. Alfred. "Examples and Problems in Pure and Mixed Mathematics." 6th edition. 1862.

DIVISION XV. Monographs (Bound)

The Volumes referred to in this Division are the Bound Volumes of Monographs on the Library Shelves.

Abbe, Cleyeland. "Historica Vol. xviii. "Historical Notes on the System of Weather

"Physics of the Globe." Vol. xviii.

Whilehead of N. Introduction to Mathematica

- Abbot, C. G. "Some Recent Astronomical Events." (From the Smithsonian Report 1901).
- ALEXANDER, S. "Certain Harmonies of the Solar System." 1875. Vol. iii., No. 5.
- Ashe, Commander E. D. "On Solar Spots." 1866, Vol. xvi. BACKHOUSE, T. W. "Structure of the Sidereal Universe." 1891. Vol. vii.
- BALL, Sir Robt. "Observations made with the South Refractor." 1884. Vol. iv., No. 3.
 - "Notes on Mars." 1901. Vol. xiv.
 - "Twelfth Memoir on the Theory of Screws." 1898. Vol. xix.
- BARKER, Geo. F. "Electrical Progress Since 1743." 1893. Vol. xvii.
- BARNARD, E. E. "Diameter of the Asteroid Juno, with remark on other Asteroids." 1900. Vol. xvi.
 - "Probable Motion of Small Stars in the 'Dumb-Bell' Nebula." 1902. Vol. xvi.
 - "On the Dimensions of the Planets and Satellites, and on the Surface Features of these Bodies." 1902. Vol. xv.
 - "Total Eclipse of the Sun in Sumatra." Vol. xvi.
 - "Micrometer Measures of the Fifth Satellite of Jupiter." 1893. Vol. vi., No. 2.
 - "Recent Observations of Nova Aurigæ and further Observations in 1901.
 - "Micrometrical and Visual Observations of Nova Cygni, 1876.'' 1902. Vol. xvi.
- Brenner, Leo. "Observations de Mars et Saturne." 1897. Vol. xiv.
 - "Jupiter-Beobachtungen an der Manora-Sternwarte 1895-6." 1897. Vol. xv.
 - "Thätigkeit der Manora-Sternwarte im Jahre 1896-9." Vol.
- Brown, Allan J. "Annular Eclipse of the Sun, March 15-16, 1885." 1885. Vol. v., No. 4.
- Brunnow, Francis. Further Researches on the Parallax of Stars." 1873. Vol. iv., No. 1.

 Burnham, S. W. "Double Star Observations at Lick Observatory, 1889-90." Vol. vii.
- - "Double Star Observations at Chicago, 1877-8." Vol. vii., (also in "Memoirs Royal Astronomical Society Vol. xliv.)
 - "Double Star Discoveries."
 - "New Double Stars."
 - "Invisible Double Stars."
 - "Double Star Measures of Bedford Catalogue."
 - "Seventh Catalogue of New Double Stars."

184 - 2

BURNHAM S. W. - (Continued).

- "Duplicity of Principal star of v Scorpii."
- " Orbit of κ Pegasi (β 989)."
 " Proper Motion of H. 1968."

"Quadruple Stars."

"Companions of Aldebaran."

"Bright Wire Illumination for Position Micrometers."

"Sirius."

"Trapezium of Orion." All in Vol. viii.

- "Sixth Catalogue of 90 New Double Stars." 1875. Vol. xix. CARPENTER, Wm. "One Hundred Proofs that the Earth is not a Globe." Vol. viii.
- CARPMAEL, Chas. "Reduction of the Barometer to Sea Level, with Tables." 1878. Vol. xviii.
- CHESSIN, Alex. S. "On the Motion of Gyroscopes." 1902. Vol. xvii.
 - "On the True Potential of the Force of Gravity." 1902. Vol. xvii.
- CLERKE, Agnes M. "Stellar Numbers and Distances."

"The Sun's Motion in Space."

"A Southern Observatory." 1893. Vol. xvi.

"Nova Aurigæ." Vol. x.

- COFFIN, J. H. C. "Psychrometrical Tables for Determining the Force of Aqueous Vapors and the Humidity of the Atmosphere." Vol. x.
- Dawson, Alfred. "A Theory of Gravity and of the Solar Process." 1884. Vol. xvi.
- DECHEVRENS, M. "Vertical Currents in Cyclones." Vol. xviii.
- DENNING, W. F. "Catalogue of Radiant Points of Meteoric Showers, and of Fireballs and Shooting Stars." 1899. Vol. xix.
 - "Radiant Points (918) of Shooting Stars." Vol. viii. Bright Meteors Observed at Bristol, 1887-9." Vol. viii.
- Downing, A. M. W. "Precession Tables...reduced to the Epoch 1910.0." 1899. Vol. xix.
- Draper, Henry. "On the Construction of a Silvered Glass Telescope . . ." 1864. Vol. iii., No. 2.
- DREYER, J. L. E. "Mean Places of 321 Red Stars." 1882. Vol. iv., No. 2.
- Eddy, H. T. "Liquefaction, Vaporization, and the Kinetic Theory of Solids and Liquids." 1883. Vol. xvii.
- ESPIN, T. E. "A Possible Factor in Volcanic Eruptions."
 1902. Vol. xviii.
 - "Spectroscopic Observations of Nova Aurigæ." Vol. x.

FARGIS, G. A. "The Photochronograph and its Application to Star Transits." 1891. Vol. v., No. 6. FAULHABER, C. "Construction of Large Telescope Lenses."

(Reprint from Smithsonian Report, 1904).

FAUTH, Philip. "Beobachtungen der Planeten Jupiter und Mars aus den Oppositionen von 1896-7." 1898. Vol. xv. FLAMMARION, Camille. "La Planete Mars." Vol. xiv.

"Rapport sur les Travaux de la Station de Climatologie Agri-

cole de Juvisy, 1900." 1901. Vol. xiii.
FLEMING, Sir Sandford. "Time Reckoning for the 20th Century." Vol. viii.

"Unit Measure of Time." Vol. viii.

"Universal or Cosmic Time." Vol. viii.

GILBERT, G. K. "The Moon's Face." Vol. x. GISBORNE, F. N. "Telephone." 1888. Vol. xvii. Gore, J. Ellard. "On the Variable Star U(Nova) Orionis."

"Orbit of 99 Herculis."

"Orbit of the Binary Star & Leonis."

"Orbit of the Binary Star 35 Comæ Berenices = \$\Sigma 1687."

"Orbit of y Coronæ Australis." (All in Vol. viii.)

" Orbit of γ Centauri." Vol. viii. "Orbit of O Σ 269." Vol. viii.

"Observations of Nova Persei." 1901. Vol. xvi.

"Orbit of Σ 1785 and of Binary Star β 416. 1893. Vol. xvi.

"On the Orbit of O \(\Sigma 82,\] 1902. Vol. xvi.
"Changes in the Stellar Heavens." 1901. Vol. xvi.

Guillaume, C. E. "The Extreme Infra-Red Radiations." 1900. Vol. xvi.

Guillaume, J. Observations Physiques de Mars." 1890. Vol.

HALL, Asaph. "Saturn and Its Rings, 1875-89." Vol. vii. "Observations of Double Stars," 1881. Vol. v., No. 2.

"Parallax of a Lyræ and 61 Cygni." 1882. Vol. v., No. 3. "Observations for Stellar Parallax." 1886. Vol. v., No. 6.

HARKNESS, Wm. "On the Magnitude of the Solar System." 1896. Vol. xvi.

"On the Flexure of Meridian Instruments." 1886. Vol. v., No. 5.

HAZEN, Henry A. "Thermometer Exposure." 1884. Vol. xviii.

"Air Temperature and Humidity." 1885. Vol. xviii.

"Anemometer Comparisons," 1889. Vol. xviii.
"The Sun Glows." 1884. Vol. xvi.

HENDON HOUSE Observatory Publications Vol. i. "The Structure of the Sidereal Universe." (By T. W. Backhouse). 1891. Vol. vii. (See also Div. III.)

HILL, G. W. "On the part of the motion of the Lunar Perigee which is a function of the Mean Motions of the Sun and Moon.'' 1877. Vol. xix.

HOLDEN, E. S. "The Multiple Star, \$748." Vol. vii. No. 1. "Beginnings of American Astronomy." 1898. Vol. xvi.

Huggins, Sir Wm. "Celestial Spectroscopy." 1893. Vol. xvi. Hugo, Cte. Leopold. "Astronomie Geometrique." 1876. Vol. xiii.

Hunt, T. Sterry. "Celestial Chemistry from the Time of Newton." 1882. Vol. xvi.

Janssen, M. J. "Photographic Photometry." 1896. Vol. xvi. JOHNSON, Arnold B. "Sound Signals." 1884. Vol. xviii.

KANE, Eliska K. "Astronomical Observations in the Arctic Seas." 1860. Vol. iii., No. 1.

KEELER, J. E. "On the Spectra of the Orion Nebula and Star." Vol. ix.

"Spectroscopic Observations of Nebulæ." 1894. Vol. vi., No. 9.

"Spectroscopes for Astronomical Purposes."

"The Star Spectroscope of Lick Observatory." "The Modern Spectroscope of . . . Allegheny Observatory." (All in Vol. ix.).

"Physical Observations of Mars in 1892." Vol. vii.

KELVIN, Lord, (Sir Wm. Thomson). "Steps towards a Kinetic Theory of Matter." 1884. Vol. xvii.

LANGLEY, S. P. "Sur les Spectres Invisibles. 1886. Vol. xvi.

"The Astrophysical Observatory." 1897. Vol. xix.
"Temperature of the Surface of the Moon." 1884. Vol. xix.

"Wave-Lengths in the Invisible Prismatic Spectrum." 1883. Vol. xix.

"Solar and Lunar Spectrum." 1886. Vol. xix.

"Preliminary Account of the Solar Eclipse of May 28, 1900. 1901. Vol. xvi.

"Invisible Heat Spectra, and the Recognition of hitherto unmeasured Wave-Lengths." Vol. xvi.

"Experimentelle Bestimmung der Wellenlängen im unsicht-baren prismatischen Spectrum." Vol. xiii.

LEHARDELAY, Chas, "Resultats d'observations de la Planète Saturne faites 1868 à 1874." Vol. xiv.

LINDSAY, Thos. "Historical Sketch of Greenwich Nautical Almanac." 1899. Vol. xvi.

LOCKYER, Sir Norman. "Chemistry of the Stars." 1900. Vol. xvi.

LOOMIS, Elias. "Aurora Borealis or Polar Light: its phenomena and laws." Vol. xiv.

LOUDON, James. "Geometrical Methods chiefly in the theory of thick lenses." 1885. Vol. xvii.

- LOWELL, Percival. "New Observations of Mercury." 1897. Vol.xv.
- MEECH, L. W. "On the relative intensity of the Heat and Light of the Sun upon different Latitudes of the Earth." 1855. Vol. iii., No. 4.
- MERRY, Alfred Senior. "Interstellar Æther." 1891. Vol. xviii.
- Morrison, J. "Apparent Orbit of a Satellite of a Superior Planet." Vol. x.
 - "Orbit of Great Comet (b) 1882." Vol. x.
 - "Orbit of Barnard's Comet 1884," Vol. x.
 - "Orbits of Comets Fabry, and Barnard-Hartwig." Vol. x.
 - "Transits of Venus for 1874 and 1882; and of Mercury for 1878." 1873. Vol. xiv.
 - "Eccentric Anomaly of Planets." Vol. x.
 - "Ephemerides of Satellites of Mars during oppositions of 1888 and 1890. Vol. x.
- Newcomb, Simon. "Aspects of American Astronomy." 1898. Vol. xvi.
 - "On the General Integrals of Planetary Motion." 1874. Vol. iii., No. 3.
 - "On the Right Ascensions of the Equatorial Fundamental Stars." 1872, Vol. v., No. 1.
 - "An Investigation of the Orbit of Neptune." 1865. Vol. i., No. 1.
- NICHOLS, E. F. "Transmission Spectra of certain substances in the Infra-Red." 1893. Vol. xvi.
- NIESTEN, L. "Rotation de la Planète Venus." 1891. Vol. xiv.
 - "Note Relative aux Variations de Latitude." 1892. Vol. xiii.
- NIPHER, Francis E. "Physics during the last Century." 1901. Vol. xvii.
- PARKHURST, H. M. "Notes on Variable Stars." 1899. Vol.
- PASSALSKY, P. "Anomalies Magnétiques dans la région des mines de Krivoi-Rog. 1901. Vol. xv.
- PAULSEN, Adam. "L'Aurore Polaire." 1900. Vol. xiv.
 - "Resultat de Mésures.. de parties correspondants des Spectres de l'Aurore Polaire..." 1901. Vol. xiv.
- PEAL, E. S. "A Possible cause for Lunar Libration." 1891. Vol. xiv.
 - "Theory of Lunar Surfacing by Glaciation." Vol. x.
- PERRY, S. J. "Phenomena Observed upon the Solar Surface, 1881-84." Vol. xvi.

- DE PEYSTER, J. Watts, and ALLABEN, Frank. "Do Ocean Currents demonstrate a Diurnal Rotation of the Earth." 1900. Vol. xviii.
- PICKERING, W. H. "Schiaparelli's latest views regarding Mars." Vol. xiv.
 - "Orations on the Aims of an Astronomer." 1906. Vol. xv. No. 57.
- PORTER, Jermain G. "Historical Sketch of Cincinnati Observatory, 1848-93." Vol. x.
- RAMBAUT, A. A. "Mean places of 1012 Southern Stars." 1887. Vol. iv., No. 4.
- RANYARD, A. C. "The Great Lunar Crater Tycho." 1894. Vol. xiv.
- Rogers, Jos. A. "The Correction of Sextants for Errors of eccentricity and graduation." 1890. Vol. xviii.
- SCHÆBERLE, J. M. "Aberration in the Focal Plane of a Parabolic Reflector." 1898. Vol. xix.
 - "Fundamental Optical Defect in Images formed by a Parabolic Reflector." 1897. Vol. xix.
 - "Formulas for the Cassegrain (and Gregory) Telescopes." 1896. Vol. xix.
- Schiaparelli G. V. "Sur la Rotation et sur la Constitution physique de Mercure." 1889. Vol. xiv.
 - "Il Pianeta Marte." 1893. Vol. xv.
- SCHOTT, Chas. A. "Tables and Results of the Precipitation in Rain and Snow in the U. S." 1881. Vol. ii.
- See, T. J. J. "Preliminary Investigation of the Diameter of Mars" 1901. Vol. xv.
 - "Equatorial Diameter of Saturn and Dimensions of his System of Rings." 1901. Vol. xv.
 - "Satellites of Saturn and Uranus." 1902. Vol. xv.
 - "Probable Diameters, Masses and Densities of those Satellites which have measurable discs." Vol. xvi.
 - "Discoveries and Measures of Double and Multiple Stars in the Southern Hemisphere." 1898. Vol. xix.
- SIDGREAVES, Walter. "On the Connection between Solar Spots and Earth-Magnetic Storms." 1900. Vol. xix.
- STEVENS, Rev. A. G. "Repulsion of Solid Bodies referable to Radiation." 1875. Vol. xvii.
- STOCKWELL, John N. "Secular Variations of the Elements of the Orbits of the Eight Principal Planets." 1870. Vol. i., No. 2.
- STROOBANT, Paul. "Observations de Saturne en 1890." Vol.

TERBY, F. "Visualité d'Oberon et de Titania."

- "Note sur l'Aurore Boreale du 2 October, 1882."
- "Note sur l'Aurore Boréale du 17 November, 1882."
- "Note sur l'Aurore Boréale du 30 Mars, 1894."
- " Periodicité mensuelle des Aurores Boreales."
- "Decouverte de la rotation de Mercure par M. Schiaparelli."
- "Sur la Structure des Bandes Equatoriales de Jupiter: Notes 1, 2, 3 and 4."
- "Études sur l'aspect physique de Jupiter." 1887.
- "Phenomenes des Satellites de Jupiter."
- "Sur une éclipse du Satellite Japet dans l'ombre ... de Saturne.
- "Sur l'aspect de Titan en passage devant Saturne." 1892.
- "Sur un nouveau passage de Titan et de son ombre, 12 Avril, 1892."
- "Observations de M. Schiaparelli sur Mars." 1880.
- " Taches de la Planete Mars"
- "Etudes sur . . . Mars." Notices 9, 10, 11, 12."
- "Gemination des Canaux de Mars."
- "Aspect de la Planète Mars pendant l'opposition de 1879 . . . etc."
- "Les premières observations de Mars et de Saturne faites à
- "Sur une Observation de Saturne faites à Louvain." 1887.
- " Phénomènes Observés sur Saturne."
- "Considerations sur le mouvement de rotation de Venus." Art. 1, 2, 3. 4.
- "Recherches sur la période lunaire des Aurores Boreales."
- "Un Dernier mot en réponse à M. Flammarion." (All in Vol. xiv.
- "Areographie, ou Observations de Mars."
- "Areographische Fragmente (Mars)." 1873. "Observations Physiques de Mars." 1889.
- "Observations Physiques de Mars."
- "Etudes sur la Planete Jupiter." 3 parts. (All in Vol.
- "Aspects de la Grand Comete de 1882." (Cruls.) 3 parts. 1882-3.
- "Notes sur la Comete de 1812." (Pous-Brooks). 1884.
- "Sur les phénomènes crepusculaires des mois de Novembre et Decembre, 1883."
- "Sur des Halos remarquables." 1892.
- "Observations des 'Etoiles Filantes Periodiques . . . 1882-3."
- "Note sur la pluie d'Etoiles Filantes du 27 Novembre, 1885."
- "Observations des Cometes b et c de 1881." (All in Vol. xiii.)
- "Sur la Périodicité mensuelle des phénomènes Magnétiques." 1888. Vol. xviii.

TINSLEY, G. W. "The Vaster Forces in Meteorology and Astronomy." Vol. x.

Tischner, August. "L'Astronomie et les Astronomes." 1893. Vol. xiii.

"Les Astronomes." 1893. Vol. xiii.

"Le Mouvement de la lumière." 1892. Vol. xiii.

"Le pouvior grossissant de l'Atmosphere." 1892. Vol. xiii.

"Le Mouvement Universal." 1893. Vol. xiii.

"Le Système solaire se mouvant." 1894. Vol. xiii.

TURNER, H. H. "On New Forms of Levels." 1891. X V11.

- "Annual Variation in the R.-D. Discordance." 1892. Vol.
- "Observations for Coincidence of Collimators." 1892. Vol.

UPTON, Winslow. "Use of the Spectroscope in Meteorological Observations." 1883. Vol. xviii.
VEEDER, M. A. "Thunderstorms." 1893. Vol. xviii.

"Solar Electro-Magnetic Induction." Vol. ix.

- "Solar Electrical energy not transmitted by Radiation." Vol. ix.
- "Thunderstorms." Vol. ix. "Zodiacal Light." Vol. ix.

VERY, Frank W. "Hail Storms." (2 copies, in Vols. x. and xi.)

VOGEL, E. "Atomic Weights under Atmospheric Pressure not Identical with Specific Gravities." Vol. ix.

Vogel, H. C., and Wilsing, J. "Untersuchungen über die Spectra von 528 Sternen." 1899. Vol. xix.

WHYMPER, Edw. "How to use an Aneroid Barometer." 1891. Vol. xvii.

Young C. A. "Variable Stars." 1894. Vol. xvi.

DIVISION XVI.-Other Works Unclassified

BAILLAIRGE, G. F. "Arctic Voyages . . . Canada." Memoranda. BRITISH ASSOCIATION for the Advancement of Science. "Handbook of Canada." 1897.

Cassidy, Wm. J. "Age of Creation." 1887.

Under John Dwight, M. A. "Grecian and Roman Mythology." 1849.

FAIRCHILD, G. M., Jr. Editor. "Canadian Leaves." (History, Art, Science, etc.). 1888.

FOWNES, George. "Elementary Chemistry: theoretical and practical." 9th edition. 1863.

GERARD, John, "The Old Riddle and the Newest Answer." 1904.

Haliburton, R. G. "How a Pigmy Race was found in North Africa and Spain, and papers on other subjects." 1898.

HUMBOLDT LIBRARY: 1 Vol. containing: —

"The Forms of Water." - Tyndall.

"Six Lectures on Light." - Tyndall.

"The Conservation of Energy." - Stewart.

"Evidence as to Man's Place in Nature." - Huxley.

"Lectures on Evolution." -- Huxley.

"The Romance of Astronomy." - Miller.

"Lessons in Electricity."— Tyndall.

"Force and Energy." — Allen.

"A Half Century of Science."— Huxley and Allen. Low, A. P. "The Cruise of the Neptune, 1903-4."

MILLER, Hugh. "The Old Red Sandstone." 1852.

MILLER, Wm. Allen. "Elements of Chemistry." 1868. 2 Vols. (Part 2, Inorganic; Part 3, Organic).

Muir, M. M. P. "The Story of the Chemical Elements." 1898.

"The Story of the Wanderings of Atoms." 1899.

Mundy, Lt.-Col. G. C. "Our Antipodes: Rambles in the Australasian Colonies." 1852. Vols. i. and iii.

RICHARDS, Joseph W. "Aluminium: its history, occurrence ... etc." 1887.

SMEE, A. H. "Suggestions as to lines for future Research." 1881.

TILDEN, Win. A. "Introduction to Chemical Philosophy." 1884.

Weller, Stuart. "The Trilobita." (The Paleontology of the Niagaran Limestone in the Chicago Area). 1907.

WOODRUFF, Frank Morley. "The Birds of the Chicago Area." WURTZ, Ad. "A History of Chemical Theory." (Trans. by Henry Watts). 1869.

Toronto January, 1911 A. SINCLAIR, Librarian

Shaehleton, Sing. The heart of the Amianchic Commissions of Cons.

Water provide of Cons. 1911.

There works of Cons. 1911.

Report of Cons. 1912. 1913.

Report of Cons. 1912. 1913.

Trene Water shed. Sworey 1913.

Trene Water shed. Sworey 1913.

Thurst Conditions in Novassulae 1912.

There Farming in Conacts 1913.

Long Sauli Rapide. St Lawrence Rever 1913.

LIST OF LANTERN SLIDES

Solar Subjects

- A 72 Photo of Sun taken at Quebec Observatory August 28, 1870.
 - 73 Solar Eclipse August 30, 1905, Corona, from drawings by eight priests, at Burgos, Spain, by Spee.

74 Solar Eclipse.

- 75 The Sun, July 18, 1905, showing spots, by E. W. Maunder, Greenwich.
- 76 Composite drawing of Eclipse of August 30, 1905, taken at Daroca, Spain.

77 Photos of Solar granulations (Hansky).

- 78 Photos of Solar granulations (Hansky). June 25, 1905.
- 79 Photos of Iron flocculi low level calcium flocculi, and hydrogen flocculi.
- 80 High and low level calcium flocculi (Mount Wilson).

81 Series obtained on August 25, 1904.

82 The Sun with sun spots and faculæ, September 4, 1893.

83 Great protuberance on east limb of sun, August 30 1905. (Photo by Schorr, Hamburg).

84 Corona, August 30, 1905, by Schorr, of Hamburg, taken in Algeria.

85 Diagram showing transits of Mercury for 20th Century.

86-88 Diagram showing transits of Mercury.

- 89 Eclipse of January 3, 1908, taken with Floyd lens. Exposure 4s.
- 90 Eclipse of January 3, 1908, taken with 40 ft. Camera. Exposure 16s.
- 91 Eclipse of January 3, 1908, taken with 40 ft. Camera. Exposure 32s.

92 Eclipse of January 3, 1908, taken with Floyd lens. Exposure 64s.

- The above four slides are from negatives of the Lick Observatory, taken by the L. O. Crocker Expedition to Flint Island.
- 93 Sun Spot and Hydrogen Flocculi, June 3 and 4, 1908.

94 Sun Spot and Hydrogen Flocculi, June 3, 1908.

- 95 Sun Spot and Hydrogen Flocculi, May 20 and June 2, 1908.
- 96 Prominences at eastern limb of Sun, April 3 and May 26, 1908.
- 97 Sun Spot, December 2, 1908, at 7 a.m. and December 8, 1908, 9.15 a.m. Drawings by Prof. Leon, Mexico.

A 98 Group of Sun Spots December 18, 1908, 8 a.m. Drawing by Prof. and Mrs. Leon.

99 Group of Sun Spots, December 19, 1908. Drawing by

Prof. Leon, Mexico.

100 Sun Spots, December 29, 30, 31, January 29, 1903. Drawings by Prof. Leon, Mexico.

Stellar Subjects

B 79 Great Nebula in Andromeda.

80 Map of Southern Constellations.

81 Chart of Southern Constellations.

82 Great Photographic Nebula near π Scorpii.

83-86 Charts showing Stellar Magnitude.

87 Hercules Cluster.

88 Crab Nebula.

89 Planetary Nebula.

90 Nebula N. G. C., 2237-9 Monocerotis.

91 Dumb bell Nebula, from a drawing.

94 Chart showing distribution of double stars by magnitude. (Burnham).

Lunar Subjects

C 94 Copernicus and surroundings.

95 Map of Moon by Edward Elgar.

96 Triesnecker from cast.

97 Photo of Moon by K. M. Clipsham, with 10-inch reflector, January 2, 1906.

98 Photo of Moon by K. M. Clipsham, with 10-inch reflector, January 6, 1906.

99 The Moon at 1st and 3rd quarter showing librations. Lick photo.

100 Photo of Plaster Cast of Lunar Crater Triesnecker by N. and C.

101-106 Partial Eclipse of Moon, July 24, 1907. From photos taken at six different stages by Rev. D. B. Marsh and presented by himself.

107 Portion of the Moon's surface shown at sunrise and sunset. 108 Tycho and its surroundings from plaster cast by N. and C.

109 Gassendi from plaster cast by N. and C.

110 Theophilus, Cyrillus and Catharina from plaster cast by N. and C.

111 Ptolemy, Alphonse, Arzachæl, etc., from plaster cast by N. and C.

112 Plato from plaster cast by N. and C.

113 Lunar Apenniues, Archimedes, etc., from plaster cast by N. aud C.

114 Full Moon, map colored.

- C115 Full Moon, from plaster cast by N. and C.
 - 116 Drawings of the Crater Abulfed showing changes.
 - 117 Drawings of the Crater Messier showing changes.
 - 118 Drawings of the Crater Censorinus showing changes.
 - 119 Drawings of the Crater Franklin showing changes.120 Drawings of the Crater Plato showing changes in cones.
 - 121 Aristarchus and Herodotus from plaster casts.
 - 122 Normal lunar Crater from plaster cast.
 - 123 Map of the Moon.
 - 124 Full Moon from plaster cast.
 - 125 Photo showing occultation of Mars by the Moon, September 1, 1909, 9.55 p.m. Presented by Dr. D. B. Marsh.
 - 126 Cracked glass globe to illustrate rays from Tycho.

Planets

- D 43 Two views of Mars from drawings.
 - 44 Orbits of the Earth and Mars.
 - 45 Sketches of Mars by S. I. Bailey and W. H. Pickering.
 - 46 Sketches of Mars by S. I. Bailey and W. H. Pickering.
 - 47 Sketches of Mars by E. E. Barnard and Philip Fox.
 - 48 Sketches of Jupiter, August 18, 1902.
 - 49 Sketches of Jupiter, June-July, 1902.
 - 50 Sketches of Jupiter, August 15, 1902.
 - 51 Diagram to explain the apparent looped paths of Mars and other planets.
 - 52 Diagram showing relative distances and sizes of the sun and planets.
 - 53 Series of photos of Jupiter taken on April 26-27, 1909, by Lowell.
 - 54 Series of photos of Jupiter taken on April 27, May 11, 1909, by Lowell.
 - 55 The Heavens according to Ptolemy.
 - 56 Series of photos of Jupiter taken on April 26-27, by Lowell.

Comets

- E 18 Path of Halley's Comet.
 - 19 Orbit of Halley's Comet.
 - 20 Photos of Daniels Comet of 1907, at various dates, (L. O.)
 - 21 Photos of Daniels Comet of 1907, at various dates, (L. O.)
 - 22 Halley's Comet February 3, 1910, and Comet α 1910, January 21, Photos by Barnard, Bruce Telescope, Yerkes Observatory.
 - 23 Comet Morehouse, October 16 and 19, 1909.
 - 24 Comet Morehouse, October 31 and November 1, 1909.
 - 25 Comet Morehouse, November 18 and 26, 1909.
 - (Nos. 23-25, from photos by Motherwell at the Dominion Observatory.)
 - 26 Comet Morehouse, October 15 and November 15, 1908.

- E 27 Halley's Comet, May 1910. Yerkes Observatory.28 Halley's Comet, May 3, 1910. Dom. Observatory, Ottawa.
 - 28a Halley's Comet, May 3, 1910. (Duplicate).
 - 29 Halley's Comet, May 5, 1910. Dom. Observatory, Ottawa.
 - 29a Halley's Comet, May 5, 1910. (Duplicate).
 - 44 Diagram of the Orbit of the Earth and the Orbit of Halley's Comet nearest the Earth in 1835 and 1910.
 - 45 Comet of 1860. Six drawings of the head, June 26-July 8.
 - 46-48 Halley's Comet, 1835-6. Various drawings by C. P. Smith, from November 11, 1835 to January 26, 1836.
 - 49 Comet 1910 a.
 - 50 Halley's Comet, May 3 and 5, 1910. Dom. Observatory.
 - 51 Halley's Comet, 1910.

Meteorites

- E 40 Shelburne Meteorites.
 - 41 Shelburne Meteorites, rear view.
 - 42 Shelburne Meteorites, two stones joined.
 - 43 Shelburne Meteorites, two stones joined, rear view.

Portraits

- F 46 Schiaparelli, G. V.
 - 47 Lowell, Prof. P.
 - 48 Pickering, W. H.
 - 49 Halley.

Spectra

G 17 Spectrum of ·0 Ceti December 18d 14h 32m 1906. G.M.T.

Aurora

H 14 Zodical Light at Cape of Good Hope, 1845.

Views

- / 25 Collins' Telescope.
 - 26 Micrometer of 40-inch Yerkes Telescope.
 - 27 Lower part of Mount Wilson trail showing pack animals loaded with lumber.
 - 28 Truck for hauling heavy instruments on Mt. Wilson trail.
 - 29 House for Snow Telescope on Mt. Wilson,
 - 30 House for Snow Telescope on Mt. Wilson.
 - 31 Concave mirror of Snow Telescope.
 - 32 The five foot spectro-heliograph when under construction.
 - 33 The five foot spectro-heliograph mounted for use with the Snow Telescope,
 - 34 Spectroscopic Laboratory of the Solar Observatory.
 - 35 Micrometer eyepiece. Ottawa Observatory.
 - 36 Cartoon from Punch, 1906. "Discovery of a Comet at Greenwich Observatory."
 - 37 American Cartoon on the re-appearance of Halley's Comet.
 - 38 Illustration of Medal struck in Germany to allay the terror caused by the Comet of 1860.

Miscellaneous

- K 45 Diagram showing Heaven, the Earth and the Abyss according to the writers of the Old Testament.
 - 46 Diagram showing Sun, Moon, Venus and the Host of Heaven, on a Babylonian Monument of the 12th Century, B.C.
 - 47 Table showing texts from Old Testament referring to Constellations, showing different readings, Job ix. 9.
 - 48 Table showing texts from Old Testament referring to Constellations, showing different readings, Job xxxvii. 9, Amos v. 8.
 - 49 Table showing texts from Old Testament referring to Constellations, showing different readings, Job xxxviii.
 - 50 Dalton's table of Atomic Weights.
 - 51 Earthquake records of April 18, 1906, registered at Lick Observatory.
 - 52 Earthquake records of April 18, 1906, registered at Lick Observatory.
 - 53 Diamond Head, Hawaii
 - 54 Interior of Haleakala, Lava Cone, Hawaii.
 - 55 Bullialdus, Kies and Mercator.
 - 56 Crater Pit, Kanhaku, Hawaii,
 - 57 The Lava Lake in Kilauea, Hawaii.
 - 58 Craterlets, Kilauea, Iki, Mokuaweoweo.
 - 59 Spiracles, Kilauea, Part of Crater Bowl, Hawaii.
 - 60 Crater, Kilauea, Hawaii,
 - 61 Erosion Valley Tantalus Oaku, Theophilus, Eratosthenes.
 - 62 Diagram—Crater Sections.
 - 63 Slag Crater—By Brashear.
 - 64 Diagram showing position of stations for observation of variations of latitude.
 - 65 Diagram showing variation of latitude 1890-1895
 - 66 Diagram showing variation of latitude 1895-1900.
 - 67 Diagram showing variation of latitude 1900-1905.
 - 68 Aparatus for detecting Radio-activity.
 - 69 Aparatus for detecting Radio-activity.
 - 70 Diagram of Radium discharges.
 - 71 X-Ray print.
 - 72 Radio active electrical discharges.
 - 73 Photo of Great Nebula in Andromeda using Radium as a source of light; also Spectrum of Radium Bromide.
 - 74 Photo of Lightning Flash, July 24, 1908, New Zealand.
 - 75 Photo of Lightning Flash, June 6, 1896, at Toronto.
 - 76 Map of Alaskan Series of Volcanoes.
 - 77 Map of Central and South American Volcanic Areas.

K 78 Asiatic Series of Volcanoes.

79 Crater of Vesuvius.

80-83 Series of Slides showing various sectional diagrams of Craters, from Nasmyth and Carpenter.

84 Diagram showing rupture of crust. N, and C.

85 Photo of Clouds,

86 The Zodiac of Denderah,

Labrador Eclipse Expedition, 1905

L 1-3 Views near Quebec.

4 Map illustrating trip to Labrador.

5 Map illustrating track of Eclipse through Canada,

6, 7 Str. King Edward; and loading cargo

8-20 Views on River and Gulf of St. Lawrence,

21-27 Views of Icebergs.

28-34 Incidents on board ship.

35-42 Views about Northwest River.

43-77 Apparatus and installations in Eclipse Camp.

78-89 Incidents and views about the Camp.

90-91 Photographs taken during totality. 92-99 Incidents of return trip.

100 Dominion Observatory, Ottawa.

M 1-74 Sir Ernest Shackleton's Expedition to South Pole. (Photographs by W. A. R. Michell).

The above is a Supplementary List of Lantern Slides to the Original List which was published as an appendix to the *Transactions* for 1904.

The Society's Slides are loaned to members on condition that the borrower pays all transportation charges, is responsible for breakages and undertakes to return them immediately after the occasion for which they were borrowed.

For further information apply to

R. S. Duncan, *Curator* 64 St. George St., Toronto