

The Brooklyn City Railroad Company operates 41 miles of double track, radiating from the Fulton and Hamilton Avenue ferries through the city to its suburbs in various directions. The returns for the year 1875, show that the company owns 1,950 horses. Each working horse travels, upon an average, $16\frac{1}{2}$ miles daily, which somewhat exceeds the average daily distance traveled on the New York city lines. The monthly feed bill amounts to about \$19,000.

During the year 1875 the company lost 334 horses, and the yearly depreciation in the value of the live-stock was about 28 per cent., the average annual depreciation for a term of years being about 25 per cent. The number of men employed is 1,000.

The company carried during the year 29,000,000 passengers, at an average cost per passenger of $4\frac{21}{100}$ cents, or an aggregate cost of \$1,221,592.

The gross receipts from passengers were \$1,446,537.

Mr. Sullivan, the President, states that among the various pavements in use between the rails, upon the ten roads operated by his company, the one which is the easiest upon the horses, and therefore the best, is formed of small cobble stones, laid with only a slight fall from the centre to the sides; and that the horses should always be shod with flat shoes, rather broad at the heel and without calks, and without cutting away any of the frog, so that a portion of the weight shall come upon the frog, whenever the animal treads upon an even surface. It is a rare occurrence for any of the horses to become disabled by contracted feet.

THE END.

INDEX.

| | PAGE | | PAGE |
|--|-----------------|--|---------------|
| Albertite | 182 | Bastenne mineral tar | 178 |
| Aneroid barometer | 10 | Belgian pavement | 160 to 162 |
| Angle of repose, definition of. ... | 20 | Best pavement for streets | 207 |
| Animal force and traffic, ratio between | 114, 115 | Bethell's wood curing process | 162 |
| Applying gravel on roads | 82 to 85 | Beton Coignet | 213, 214 |
| Applying stone on roads | 89 and 95, 96 | Binding material | 85 |
| Applying new materials for repairs | 121 to 136 | Bitumens | 172 to 175 |
| Apportionment of materials for repairs | 135, 136 | Bituminous limestone | 174, 176, 177 |
| Ascending grades, resistance on .. | 30 | Bituminous limestone pavement | 176 to 181 |
| Asphalt pavement | 171 to 197 | Bituminous mastic | 215 to 217 |
| " foundation for | 177, 178 | Blake's stone crusher | 92 to 94 |
| Asphaltum | 174, 175 | Block pavement of asphalt | 191, 192 |
| Asphalt rock | 176, 177 | Block pavements, objections to | 203, 204 |
| " heating the | 178, 179 | Brake and starter for street cars | 240 to 243 |
| " applying the | 179 to 181, 189 | Brick pavement | 169 to 172 |
| Asphaltic cement | 182 to 185 | Brick footpaths | 219 |
| Asphalt block pavement | 191, 192 | Brick drains | 55 to 58 |
| Asphalt mixer | 188, 189 | Broken stone road, ratio of draught to weight on | 22 |
| Asphalt pavement, merits of | 192 to 194 | Broken stone footpaths | 219 to 221 |
| " price of | 195 | Broken stone roads | 86 to 96 |
| " in New York City | 194, 196 | | |
| Asphalt pavement, patent | 190 | | |
| " in Washington, D. C. | 195 | C. | |
| Asphalt, stone and wood pavements compared | 197 to 207 | Car brake and starter | 240 to 243 |
| Asphalt foot-paths | 215 to 218 | Catchwaters | 71, 72 |
| Asphaltine | 182 | Central Park, N. Y., roads | 89 |
| | | Charcoal roads | 107, 108 |
| | | Chicago pavements | 170 |
| | | Classification of roads | 77 |
| | | Cleansing street pavements | 199 |
| | | Cobble stones | 144 |
| | | Cobble stone pavement | 143 to 145 |
| | | Common roads, fixing the line of .. | 46 |
| B. | | | |
| Basalt and schist | 134 | | |
| Basaltic rock for roads | 76 | | |

| | PAGE |
|---|------------|
| Comparative merits of different pavements..... | 197 to 207 |
| Comparison of Telford and Macadam roads..... | 98, 99 |
| Concrete footpaths..... | 208 to 215 |
| Concrete, compacting..... | 210 |
| Concrete, hand-made..... | 221 to 223 |
| Concrete, mill-made..... | 223 to 226 |
| Concrete mixer..... | 224 to 226 |
| Concrete foundation for roads..... | 103, 104 |
| Concrete of Rosendale cement..... | 63 |
| Contour lines..... | 17 |
| Convenience, relative, of street pavements..... | 199 to 201 |
| Construction of street railways..... | 232 to 240 |
| Covering for roads..... | 76 to 108 |
| Corduroy roads..... | 79, 80 |
| Cost of stone, brick, and tile drains..... | 57, 59 |
| Cost, relative, of street pavements..... | 198, 199 |
| Cost of asphalt pavements..... | 195 |
| Creosoting wood..... | 162, 163 |
| Cross section of road surface..... | 70 |
| Cross sections of route..... | 17 |
| Cross drains of roads..... | 55 to 60 |
| Cross ties and stringers..... | 234 to 236 |
| Crozier car brake and starter..... | 240 to 243 |
| Cuba asphalt..... | 174, 182 |
| Cubical block pavement, tractive force on..... | 23 |
| Culverts..... | 60 to 66 |
| Culverts of concrete..... | 62, 66 |
| Cumberland road..... | 69 |
| Curves of tonnage and wear..... | 132 to 135 |
| Curbstones in New York city..... | 150 |
| Cuttings, side slopes in..... | 40 |
| Cylindrical broom..... | 119 to 121 |
| “ road roller..... | 83, 84 |
| D. | |
| Dead Sea asphaltum..... | 174 |
| Decay of wood, protection against..... | 162, 163 |
| Descending grades, resistance on..... | 30 |
| Descriptive memoir..... | 13 |

| | PAGE |
|--|--------------------|
| Dimensions of stone blocks for paving..... | 152, 159, 160 |
| Dolomite rock for roads..... | 76 |
| Drainage of road surface..... | 58 to 60, 71 |
| “ “ street railways..... | 232 |
| “ “ side slopes in cuttings..... | 41, 42 |
| Drainage of road bed..... | 55 to 59, 104 |
| Drains of stone, brick, and tiles..... | 56 to 59 |
| Drains, side..... | 53 to 55 |
| Durability, relative, of street pavements..... | 197, 198 |
| Dynamical resistances..... | 29 |
| E. | |
| Earth roads..... | 77, 78 |
| Earth road, ratio of draught to weight on..... | 22, 23 |
| Earthwork, definition of..... | 40 |
| Economy of thorough road maintenance..... | 109 to 115 |
| Embankments, and their slopes..... | 44 to 47 |
| Endurance, relative, of pavements..... | 197, 198 |
| Excavated earth, growth of..... | 36 |
| “ “ moving of..... | 37 |
| Excavations..... | 35 to 44 |
| Exhalations, noxious..... | 203 to 205 |
| Expediency considered in locating a road..... | 14, 15 |
| F. | |
| Fastenings for street railways..... | 237 to 240 |
| Feldspathic rock for roads..... | 76 |
| Fireless locomotive..... | 242, 244 |
| Flagging stone footpaths..... | 219 |
| Footpaths..... | 208 to 221 |
| Footpaths of concrete..... | 208 to 215 |
| “ “ asphalt..... | 215 to 218 |
| “ “ brick, etc..... | 219 to 221 |
| “ “ broken stone..... | |
| Footpaths in parks..... | 220, 221 |
| Form of road surface, transverse..... | 70 |
| Forms of street rails..... | 233, 234 |
| Fork for handling stone..... | 73 |
| Foundations of concrete..... | 103, 104, 147 |
| “ “ rubble stones filled in with concrete..... | 105, 106, 107, 149 |

| | PAGE |
|--|-------------------------|
| Foundations of broken stone..... | 143 |
| “ “ cobble stones..... | 143 to 145 |
| “ “ rubble stone..... | 100, 101, 102, 146, 148 |
| Foundation for asphalt pavement..... | 177, 178 |
| Fonssagrives on street pavements..... | 202, 260 |
| French methods of maintaining roads..... | 117 to 136 |
| French roads, four classes of..... | 69 |
| G. | |
| Gaujac tar..... | 173 |
| Grades, maximum and minimum..... | 27 |
| Grades, definition of..... | 20 |
| Grades, undulating..... | 25 |
| Grades at curves..... | 27 |
| Grades, statical resistance on..... | 27 |
| Grades on earth roads..... | 77, 78 |
| Grahamite..... | 182 |
| Gravel footpaths..... | 219 to 221 |
| Gravel road, relation of draught to weight on..... | 22 |
| Gravel roads..... | 81 to 86 |
| “ “ maintenance of..... | 136 |
| Growth of excavated earth..... | 36 |
| “ “ “ rock (Trautwine)..... | 37 |
| Guidet pavement..... | 156, 158 |
| Gutter stones in New York city..... | 150 |
| H. | |
| Hammers for breaking stone..... | 72 to 73 |
| Hand-made concrete..... | 221 to 223 |
| Hardness of stone, how tested..... | 90, 91 |
| Haywood, Wm., on street pavements..... | 199, 200 |
| Healthfulness, relative, of street pavements..... | 201 to 206 |
| Heater for sand..... | 187, 188 |
| Heating asphalt rock..... | 178, 179 |
| Highgate-Archway road..... | 103, 104, 105 |
| Hill-side road..... | 47 |
| Hollyhead road..... | 69 |
| Hygienic considerations touching street pavements..... | 201, 206 |

| | PAGE |
|---|--------------|
| I. | |
| Implements for road making..... | 72 to 74 |
| Inclination of side slopes..... | 40 |
| Instrumental examination of route..... | 16 |
| Italian tramways..... | 228, 229 |
| J. | |
| Jersey Flats..... | 52 |
| L. | |
| Law, Henry..... | 30, 121, 122 |
| Lead, definition of..... | 35 |
| Leveling instrument..... | 74, 75 |
| Limestone for road coverings..... | 76 |
| Location, considerations governing..... | 9, 13 |
| Locating line on the ground..... | 40 |
| Locomotive without fire..... | 242 |
| Longitudinal inclination of roads..... | 71 |
| M. | |
| Macadam roads, grade on..... | 25 |
| Macadam roads seldom well kept up..... | 115, 116 |
| Macadam, 86 to 96, road, tractive force on..... | 23 |
| Macneill, Sir John..... | 104 |
| Macneill's, Sir John, formulae..... | 29 |
| Machine brooms..... | 119 to 121 |
| Maintenance and repair of roads..... | 109 to 136 |
| Maintenance of roads of moderate traffic..... | 117, 123 |
| Maintenance of roads of large traffic..... | 129 to 136 |
| Maintenance and repairs of pavements..... | 198, 199 |
| Map of route..... | 12, 39 |
| Map of contour lines..... | 17 |
| Marsh, roads over..... | 49 to 52 |
| Massachusetts street railways..... | 243 to 251 |
| Mastic, bituminous..... | 215 to 217 |
| Materials for repairs, apportionment of..... | 135 to 136 |
| Mechanical car-starter..... | 240, 243 |
| Memoir, descriptive..... | 13 |
| Merits of asphalt pavements..... | 192, 193 |

| PAGE | PAGE |
|--|---|
| Merits of street pavements compared.....197 to 207 | Pavement of street railways.233 to 240 |
| Mill for mixing concrete....224 to 226 | Pavements of wood, stone, and asphalt compared.....197 to 207 |
| Minute repairs, maintenance by.....118 to 128 | Periodical repairs, maintenance by.....129 to 136 |
| Mineral tar.....173 | Petrolene.....182 |
| Mixer for asphalt.....188, 189 | Plank road, force of traction on... 23 |
| Mixing asphaltic cement and powder.....186 to 189 | Plank roads.....90 |
| Morin's experiments for tractive force.....21, 22 | Portland cement for foot paths.....208 to 215 |
| Mortar, compressive strength of.....213, 214 | Portland cement with sand...210, 211 |
| Moving earth.....37, 38 | Portland cement, concrete.....63, 64 |
| | Powder for asphalt pavements.185, 186 |
| | Pyrimont, Seyssel, tar.....173 |

N.

| |
|---|
| New York city asphalt pavements.....194, 196, 197 |
| New York state street railways.....243 to 249 |
| Nicolson pavement.....163 to 165 |
| Noisy pavements, objections to.202, 203 |
| Noxious exhalations from pavements.....203, 205 |

O.

| |
|---|
| Objections to granite pavements.. 201 |
| Objections to Macadam roads....98, 99 |
| Objections to Telford roads.....99 |
| Objections to wood pavements.....202 to 207 |

P.

| | |
|--|--|
| Parallel cross sections.....17 | Railway train resistances.....231 |
| Paris, asphalt pavements in.....194 | Rammers for concrete.....210 |
| Park walks.....220, 221 | Reconnaissance of route.....10 |
| Patent asphalt pavement.....190 | Refining asphaltum.....183, 184 |
| Pavements for streets.....187 to 207 | Relation of animal force to traffic.....114, 115 |
| “ foundations of...142 to 149 | Repairs and maintenance of roads.....109 to 136 |
| Pavement of cobble stones..143 to 145 | Resistance to draught on grades.. 27 |
| “ “ rubble stones...146, 147 | Resistance of vehicles in motion.. 29 |
| “ “ stone blocks...151 to 162 | Road between Lyons and Toulouse 127 |
| “ “ wood.....162 to 170 | Road from Tours to Caen.....123 |
| “ “ bricks.....168, 169, 219 | Road covering, thickness of..84, 94, 97 |
| “ “ asphalt...171 to 197, 215 | Road coverings.....76 to 108 |
| Pavement, ratio of draught to weight on.....22 | Road rollers.....83, 84 |
| | Road materials.....76 |
| | Roads in the Dept. of the Loire... 131 |
| | Roads of the Dept. de la Sarthe.. 127 |
| | Roads, maintenance and repairs of.....109 to 136 |
| | Roads on hill sides.....47, 48 |
| | “ over marshes.....49 to 52 |
| | “ “ tidal marsh.....50 to 52 |
| | Roads of logs (corduroy).....79 |
| | “ “ planks.....80 |
| | “ “ gravel.....81 to 86 |
| | Rock, side cuttings in.....44 |
| | Roman military roads.....69 |
| | Rosendale cement, concrete.....63 |
| | Rubble stone foundation.....100, 101 |
| | Russ pavement.....158, 159, 160 |

R.

S.

| PAGE |
|--|
| Sand heater.....187, 188 |
| Schillinger pavement.....212, 213 |
| Screening gravel.....82 |
| Sections of line.....12, 39 |
| Seely's wood curing process.....163 |
| Seyssel asphalt rock.....176, 216 |
| Sewers.....187 to 189 |
| Shell roads.....107 |
| Shortest line seldom practicable.. 14 |
| Side cuttings, definition of.....53 |
| Side drains, covered.....54, 59 |
| Side drains of roads.....53, 54 |
| Sidegutters.....58, 149 to 150 |
| Side slopes in cuttings, inclination of.....40 |
| Side slopes in cuttings, drainage of 41 |
| “ “ “ rock.....44 |
| Sidewalks.68, 69, 149 to 151, 208 to 221 |
| Sidewalk vaults.....217, 218 |
| Sienitic granite.....76 |
| Silt basins.....59, 60 |
| Slides.....48, 44 |
| Slopes of embankments.....46 |
| Sluice-gate drainage.....51, 52 |
| Specifications.....40 |
| Spoil banks, definition of.....53 |
| Springs in side basins.....41, 42 |
| Starter for street cars, mechanical.....240 to 243 |
| Statistical resistance on grades.....27 |
| Statistics of street railways.245 to 252 |
| Steep grades, pavements on.153, 155, 156 |
| Stone block pavement.....151 to 162 |
| Stone drains.....57 to 59 |
| Stone trackway tractive force.....23 |
| Stone suitable for roads.....76 |
| Stone, examination and tests of..90, 91 |
| Stone crusher.....92 to 94 |
| Stone, wood, and asphalt pavements compared.....197 to 207 |
| Stowe pavement.....165, 166 |
| Street pavements.....187 to 207 |
| “ “ foundations of.....142 to 149 |
| Streets, drainage of.....139, 140 |
| Street railways.....231 to 252 |
| Street rails, forms of.....233, 234 |

PAGE

| |
|--|
| Street railway stringers and cross-ties.....234 to 236 |
| Street railway fastenings and pavements.....237 to 240 |
| Street railway statistics.....243 to 251 |
| Sub-pavement, Telford's.....98 to 100 |
| Surveys.....12 |
| Surface drainage of roads.....58, 59 |
| Swamps, roads over.....49, 50 |
| Sweeping roads.....118 to 121 |

T.

| |
|--|
| Table of resistances on various grades.....30 |
| Tehuantepec asphalt.....183 |
| Teil hydraulic lime.....212, 213 |
| Thickness of broken stone covering 94 |
| “ “ gravel covering.....84 |
| Telford road, tractive force on... 23 |
| “ “ grade on.....25 |
| Telford roads.....96 to 100 |
| Telford sub-pavement.....98, 99 |
| Testing stone for roads.....90, 91 |
| Tidal marshes.....50 to 52 |
| Tile drains.....56 to 59 |
| Tonnage and wear.....182 to 184 |
| Tools.....72 to 75 |
| Toughness of stone, how tested .90, 91 |
| Topography by contour lines.....17 |
| Tractive force, definition of.....21 |
| “ “ Morin's experiments on.....21, 22 |
| Tractive force in pounds per ton on various roads.....23 |
| Tramways.....227 to 231 |
| Tramways in Italy.....228, 229 |
| Transporting earth.....37, 38 |
| Transverse form of road surface.. 70 |
| Trial lines.....12 |
| Trinidad asphaltum.....174, 182, 183 |
| Turnpike system.....109 |

U.

| |
|--------------------------|
| Undulating grades.....25 |
|--------------------------|

V.

| |
|-----------------------------|
| Val-de-Travers.....176, 216 |
|-----------------------------|

| | PAGE | | PAGE |
|-----------------------------|------------|--|------------|
| Varieties of bitumen..... | 172 to 175 | Width of country roads..... | 66 to 71 |
| Vaults under sidewalks..... | 217, 218 | Width of French roads | 69 |
| | | Wings of country roads | 70, 95, 96 |
| | | Wood, creosoting..... | 162 |
| | | Wood for road coverings. | 76 |
| | | Wood, stone, and asphalt pavements compared..... | 197 to 207 |
| | | Wooden culverts..... | 63 |
| | | Wooden pavements | 162 to 170 |
| | | Wooden pavements of Chicago.... | 168 |
| | | Wooden pavements, dust from..... | 205, 206 |

Standard Text Books Published by
D. VAN NOSTRAND COMPANY,
 NEW YORK.

ABBOTT, A. V. *The Electrical Transmission of Energy.*
 A Manual for the Design of Electrical Circuits. *Fourth Edition,*
entirely rewritten and enlarged. Fully illustrated. 8vo, cloth.
net, \$5.00

ASHE, Prof. S. W., and KEILEY, J. D. *Electric Railways,*
 Theoretically and Practically Treated. Vol. I, Rolling Stock.
 12mo, cloth. 290 pp., 172 illustrations.net, \$2.50

— *Electric Railways.* Vol. II. *The Sub-Station and*
the Distributing System. 12mo, cloth, illustrated.*In Press.*

ATKINSON, Prof. A. A. (Ohio University.) *Electrical and*
Magnetic Calculations, for the use of Electrical Engineers and
Artisans, Teachers, Students, and all others interested in the
Theory and Application of Electricity and Magnetism. *Second*
Edition, revised. 8vo, cloth, illustrated.net, \$1.50

ATKINSON, PHILIP. *The Elements of Electric Lighting,*
 including Electric Generation, Measurement, Storage, and Distri-
 bution. *Tenth Edition, illustrated.* 12mo, cloth. \$1.50

— *The Elements of Dynamic Electricity and Magnetism.*
Third Edition. 120 illustrations. 12mo, cloth. \$2.00

— *Power Transmitted by Electricity, and its Application*
by the Electric Motor, including Electric Railway Construction.
Third Edition, fully revised, new matter added, illustrated. 12mo,
 cloth. \$2.00

AUCHINCLOSS, W. S. *Link and Valve Motions Simpli-*
fied. Illustrated with 29 wood-cuts, 20 lithographic plates, to-
 gether with a Travel Scale, and numerous useful tables. *Four-*
teenth Edition, revised. 8vo, cloth. \$2.00

BEAUMONT, ROBERT. *Color in Woven Design.* With
 32 colored plates and numerous original illustrations. Thick
 12mo. \$7.50

- BEGTRUP, J., M.E.** The Slide Valve and its Functions. With Special Reference to Modern Practice in the United States. With numerous diagrams and figures. 8vo, cloth, illustrated. \$2.00
- BERNTHSEN, A.** A Text-Book of Organic Chemistry. Translated by George McGowan, Ph.D. *Fourth English Edition, Revised and extended by the author and translator.* Illustrated. 12mo, cloth. \$2.50
- BERRY, W. J.** Differential Equations of the First Species. 12mo, cloth, illustrated. *In Press.*
- BIGGS, C. H. W.** First Principles of Electricity and Magnetism. A book for beginners in practical work, containing a good deal of useful information not usually to be found in similar books. With numerous tables and 343 diagrams and figures. 12mo, cloth, illustrated. \$2.00
- BOWIE, AUG. J., Jr., M.E.** A Practical Treatise on Hydraulic Mining in California. With Descriptions of the Use and Construction of Ditches, Flumes, Wrought-iron Pipes and Dams; Flow of Water on Heavy Grades, and its Applicability, under High Pressure, to Mining. *Ninth Edition.* Quarto, cloth, illustrated. \$5.00
- BOWSER, Prof. E. A.** An Elementary Treatise on Analytic Geometry. Embracing Plane Geometry, and an Introduction to Geometry of Three Dimensions. 12mo, cloth. *Twenty-first Edition.* \$1.75
- An Elementary Treatise on the Differential and Integral Calculus. With numerous examples. *Twenty-first Edition, enlarged by 640 additional examples.* 12mo, cloth. \$2.25
- An Elementary Treatise on Analytic Mechanics. With numerous examples. 12mo, cloth. *Eighteenth Edition.* \$3.00
- An Elementary Treatise on Hydro-Mechanics. With numerous examples. 12mo, cloth. *Fifth Edition.* \$2.50
- A Treatise on Roofs and Bridges. With Numerous Exercises. Especially adapted for school use. 12mo, cloth, illustrated. *net, \$2.25*
- BUSKETT, E. W.** Fire Assaying. 12mo, cloth, illustrated. *In Press.*

- CAIN, Prof. W.** Brief Course in the Calculus. With figures and diagrams. 8vo, cloth, illustrated. *net, \$1.75*
- CATHCART, Prof. WM. L.** Machine Design. Part I. Fastenings. 8vo, cloth, illustrated. *net, \$3.00*
- CHRISTIE, W. WALLACE.** Chimney Design and Theory. A book for Engineers and Architects, with numerous half-tone illustrations and plates of famous chimneys. *Second Edition, revised.* 8vo, cloth. \$3.00
- Boiler Waters. Scale, Corrosion, Foaming. 8vo, cloth, illustrated. *net, \$3.00*
- COFFIN, Prof. J. H. C.** Navigation and Nautical Astronomy. Prepared for the use of the U. S. Naval Academy. *New Edition.* Revised by Commander Charles Belknap. 52 woodcut illustrations. 12mo, cloth. *net, \$3.50*
- COOMBS, H. A.** Art of Generating Gear-Teeth. With figures and folding diagrams. 16mo, boards, illustrated. \$0.50
- COPPERTHWAIT, W. C.** Tunnel Shields and the Use of Compressed Air in Subaqueous Works. 4to, cloth, illustrated. *net, \$9.00*
- CORNWALL, Prof. H. B.** Manual of Blow-pipe Analysis; Qualitative and Quantitative. With a Complete System of Determinative Mineralogy. 8vo, cloth, with many illustrations. \$2.50
- CROCKER, Prof. F. B.** Electric Lighting. A Practical Exposition of the Art, for Use of Engineers, Students, and others interested in the Installation or Operation of Electrical Plants. *New Edition, thoroughly revised and rewritten.* Vol. I. The Generating Plant. 8vo, cloth, illustrated. \$3.00
- Vol. II. Distributing Systems and Lamps. *Sixth Edition.* 8vo, cloth, illustrated. \$3.00
- and **WHEELER, S. S.** The Management of Electrical Machinery: a thoroughly revised and enlarged edition of the authors' "Practical Management of Dynamos and Motors." 12mo, cloth, illustrated. \$1.00

- DORR, B. F.** The Surveyor's Guide and Pocket Table-Book. *Fifth Edition, thoroughly revised and greatly extended.* With a second appendix up to date. 16mo, morocco, flaps. \$2.00
- DRAPER, C. H.** Heat, and the Principles of Thermodynamics. With many illustrations and numerical examples. 12mo, cloth. \$1.50
- ECCLES, Dr. R. G.** Food Preservatives; their Advantages and Proper Use. With an Introduction by E. W. Duckwall. M.S. 8vo, 202 pp., cloth. \$1.00
paper. .50
- ELIOT, Prof. C. W., and STORER, Prof. F. H. A.** Compendious Manual of Qualitative Chemical Analysis. Revised with the co-operation of the authors, by Prof. William R. Nichols. Illustrated. *Twenty-first Edition, newly revised by Prof. W. B. Lindsay and F. H. Storer.* 12mo, cloth. \$1.50
- EVERETT, J. D.** Elementary Text-Book of Physics. Illustrated. *Seventh Edition.* 12mo, cloth. \$1.40
- FANNING, Col. J. T.** A Practical Treatise on Hydraulic and Water-supply Engineering. Relating to the Hydrology, Hydrodynamics and Practical Construction of Water-works in North America. 180 illus. 8vo, cloth. *Fifteenth Edition, revised, enlarged, and new tables and illustrations added.* 650 pp. \$5.00
- FISH, J. C. L.** Lettering of Working Drawings. Thirteen plates, with descriptive text. Oblong, 9x12½, boards. \$1.00
- FOSTER, H. A.** Electrical Engineers' Pocket-Book. With the Collaboration of Eminent Specialists. A handbook of useful data for Electricians and Electrical Engineers. With innumerable tables, diagrams, and figures. *Third Edition, revised.* Pocket size, full leather, 1000 pages. \$5.00
- FOX, WM., and THOMAS, C. W., M.E.** A Practical Course in Mechanical Drawing. With plates. *Second Edition, revised.* 12mo, cloth. \$1.25
- GEIKIE, J.** Structural and Field Geology, for Students of Pure and Applied Science. With figures, diagrams, and half-tone plates. 8vo, cloth, illustrated. net, \$4.00
- GILLMORE, Gen. Q. A.** Practical Treatise on the Construction of Roads, Streets, and Pavements. *Tenth Edition.* With 70 illustrations. 12mo, cloth. \$2.00

- GOODEVE, T. M.** A Text-Book on the Steam-Engine. With a Supplement on Gas-Engines. *Twelfth Edition, enlarged.* 143 illustrations. 12mo, cloth. \$2.00
- GUY, A. E.** Experiments on the Flexure of Beams, resulting in the Discovery of New Laws of Failure by Buckling. Reprinted from the "American Machinist." With diagrams and folding plates. 8vo, cloth, illustrated. net, \$1.25
- HAEDER, HERMAN, C.E.** A Handbook on the Steam-Engine. With especial reference to small and medium-sized engines. *Third English Edition,* re-edited by the author from the second German edition, and translated with considerable additions and alterations by H. H. P. Powles. 12mo, cloth. Nearly 1100 illustrations. \$3.00
- HALL, WM. S., Prof.** Elements of the Differential and Integral Calculus. *Sixth Edition, revised.* 8vo, cloth, illustrated. net, \$2.25
- Descriptive Geometry; with Numerous Problems and Practical Applications. Comprising an 8vo volume of text and a 4to Atlas of illustrated problems. Two vols., cloth. net, \$3.50
- HALSEY, F. A.** Slide-Valve Gears: an Explanation of the Action and Construction of Plain and Cut-off Slide-Valves. Illustrated. *Eighth Edition, revised and enlarged.* 12mo, cloth. \$1.50
- HANCOCK, HERBERT.** Text-Book of Mechanics and Hydrostatics. With over 500 diagrams. 8vo, cloth. \$1.75
- HARDY, E.** Elementary Principles of Graphic Statics. Containing 192 diagrams. 8vo, cloth, illustrated. \$1.50
- HAY, A.** Alternating Currents; Their Theory, Generation and Transformation. 8vo, cloth, illustrated. net, \$2.50
- HECK, Prof. R. C. H.** The Steam-Engine. Vol. I. The Thermodynamics and the Mechanics of the Engine. 8vo, cloth, 391 pp., illustrated. net, \$3.50
- Vol. II. Form, Construction, and Working of the Engine. The Steam-Turbine. In Press.
- HERRMANN, GUSTAV.** The Graphical Statics of Mechanism. A Guide for the Use of Machinists, Architects, and Engineers; and also a Text-Book for Technical Schools. Translated and annotated by A. P. Smith, M.E. 7 folding plates. *Fourth Edition.* 12mo, cloth. \$2.00

- HIROI, I.** *Statically-Indeterminate Stresses in Frames*. Commonly used for Bridges. With figures, diagrams, and examples. 12mo, cloth, illustrated.net, \$2.00
- HOPKINS, Prof. N. MONROE.** *Experimental Electro-chemistry. Theoretically and Experimentally Treated. A Lecture Room and Laboratory Manual for Colleges and Universities.* With a bibliography and 130 figures and diagrams. 300 pages. 8vo, illustrated.net, \$3.00
- HUTCHINSON, R. W., Jr.** *Long-Distance Electric Power Transmission.* Being a treatise on the Hydro-Electric Generation of Energy: Its Transformation, Transmission, and Distribution. 12mo, cloth, illustrated.In Press.
- and **IHLSENG, M. C.** *Electricity in Mining, being a Theoretical and Practical Treatise on the Construction, Operation, and Maintenance of Electrical Mining Machinery.* 12mo, cloth, illustrated.In Press.
- JAMIESON, ANDREW, C.E.** *A Text-Book on Steam and Steam-Engines.* Specially arranged for the Use of Science and Art, City and Guilds of London Institute, and other Engineering Students. *Fourteenth Edition, revised.* Illustrated. 12mo, cloth. \$3.00
- *Elementary Manual on Steam, and the Steam-Engine.* Specially arranged for the Use of First-Year Science and Art, City and Guilds of London Institute, and other Elementary Engineering Students. *Tenth Edition, revised.* 12mo, cloth. \$1.50
- JANNETTAZ, EDWARD.** *A Guide to the Determination of Rocks: being an Introduction to Lithology.* Translated from the French by G. W. Plympton, Professor of Physical Science at Brooklyn Polytechnic Institute. 12mo, cloth.\$1.50
- JOHNSTON, Prof. J. F. W., and CAMERON, Sir CHARLES.** *Elements of Agricultural Chemistry and Geology.* *Seventeenth Edition.* 12mo, cloth.\$2.60
- JONES, Prof. H. C.** *The Electrical Nature of Matter and Radioactivity.* 12mo, cloth, illustrated.\$2.00
- KAPP, GIBBERT, C.E.** *Electric Transmission of Energy, and its Transformation, Subdivision, and Distribution.* A practical handbook. *Fourth Edition, revised.* 12mo, cloth.\$3.50

- KEMP, JAMES FURMAN, A.B., E.M.** *A Handbook of Rocks; for use without the microscope. With a glossary of the names of rocks and other lithological terms.* *Second Edition, revised.* 8vo, cloth, illustrated.\$1.50
- KLEIN J. F.** *Design of a High-Speed Steam-engine.* With notes, diagrams, formulas, and tables. *Second Edition, revised and enlarged.* 8vo, cloth, illustrated. 257 pp.net, \$5.00
- KNIGHT, A. M., Lieut.-Com. U.S.N.** *Modern Seaman-ship.* Illustrated with 136 full-page plates and diagrams. 8vo, cloth, illustrated. *Third Edition, revised.*net, \$6.00
Half morocco.\$7.50
- KNOTT, C. G., and MACKAY, J. S.** *Practical Mathematics.* With numerous examples, figures, and diagrams. *New Edition.* 8vo, cloth, illustrated.\$2.00
- KRAUCH, C., Dr.** *Testing of Chemical Reagents for Purity.* Authorized translation of the *Third Edition*, by J. A. Williamson and L. W. Dupre. With additions and emendations by the author. 8vo, cloth.net \$4.50
- LASSAR-COHN, Dr.** *An Introduction to Modern Scientific Chemistry, in the form of popular lectures suited to University Extension Students and general readers.* Translated from the author's corrected proofs for the second German edition by M. M. Pattison Muir, M.A. 12mo, cloth, illustrated.\$2.00
- LODGE, OLIVER J.** *Elementary Mechanics, including Hydrostatics and Pneumatics.* *Revised Edition.* 12mo, cloth. \$1.50
- LUCKE, C. E.** *Gas Engine Design.* With figures and diagrams. *Second Edition, revised.* 8vo, cloth, illustrated.net, \$3.00
- LUQUER, LEA McILVAINE, Ph.D.** *Minerals in Rock Sections.* The Practical Method of Identifying Minerals in Rock Sections with the Microscope. Especially arranged for Students in Technical and Scientific Schools. *New Edition, revised.* 8vo, cloth. Illustrated.net, \$1.50
- MARKS, G. C.** *Hydraulic Power Engineering.* A Practical Manual on the Concentration and Transmission of Power by Hydraulic Machinery. With over 200 diagrams and tables. 8vo, cloth, illustrated.\$3.50

MARSH, C. F. Reinforced Concrete. With full-page and folding plates, and 512 figures and diagrams. 4to, cloth, illustrated. *net*, \$7.00

MERCK, E. Chemical Reagents; Their Purity and Tests. *In Press.*

MILLER, E. H. Quantitative Analysis for Mining Engineers. 8vo, cloth. *net*, \$1.50

MINIFIE, WM. Mechanical Drawing. A Text-Book of Geometrical Drawing for the use of Mechanics and Schools, in which the Definitions and Rules of Geometry are familiarly explained; the Practical Problems are arranged from the most simple to the more complex, and in their description technicalities are avoided as much as possible. With illustrations for Drawing Plans, Sections, and Elevations of Railways and Machinery: an Introduction to Isometrical Drawing, and an Essay on Linear Perspective and Shadows. Illustrated with over 200 diagrams engraved on steel. *Tenth Thousand.* With an appendix on the Theory and Application of Colors. 8vo, cloth. . . \$4.00

— Geometrical Drawing. Abridged from the Octavo Edition, for the use of schools. Illustrated with 48 steel plates. *Ninth Edition.* 12mo, cloth. \$2.00

MOSES, ALFRED J., and PARSONS, C. L. Elements of Mineralogy, Crystallography, and Blow-Pipe Analysis from a Practical Standpoint. 336 illustrations. *New and enlarged Edition.* 8vo, cloth. \$2.50

MOSS, S. A. Elements of Gas-Engine Design. Reprint of a Set of Notes accompanying a Course of Lectures delivered at Cornell University in 1902. 16mo, cloth, illustrated. (Van Nostrand's Science Series.) \$0.50

NASMITH, JOSEPH. The Student's Cotton Spinning. *Third Edition, revised and enlarged.* 8vo, cloth, illustrated. . \$3.00

NIPHER, F. E., A.M. Theory of Magnetic Measurements. With an Appendix on the Method of Least Squares. 12mo, cloth. \$1.00

NUGENT, E. Treatise on Optics; or, Light and Sight theoretically and practically treated, with the application to Fine Art and Industrial Pursuits. With 103 illustrations. 12mo, cloth. \$1.50

OLSEN, Prof. J. C. Text-Book of Quantitative Chemical Analysis by Gravimetric, Electrolytic, Volumetric, and Gasometric Methods. With seventy-two Laboratory Exercises giving the analysis of Pure Salts, Alloys, Minerals, and Technical Products. *Second Edition, revised.* 8vo, cloth, illustrated. 513 pages. *net*, \$4.00

LOUDIN, MAURICE A. Standard Polyphase Apparatus and Systems. With many diagrams and figures. *Third Edition, thoroughly revised.* Fully illustrated. \$3.00

PALAZ, A., Sc.D. A Treatise on Industrial Photometry, with special application to Electric Lighting. Authorized translation from the French by George W. Patterson, Jr. 8vo, cloth, illustrated. \$4.00

PARSHALL, H. F., and HOBART, H. M. Armature Windings of Electric Machines. With 140 full-page plates, 65 tables, and 165 pages of descriptive letter-press. 4to, cloth. . . . \$7.50

PATTON, H. B. Lecture Notes on Crystallography. *Revised Edition, largely rewritten.* Prepared for use of the students at the Colorado School of Mines. With blank pages for note-taking. 8vo, cloth. *net*, \$1.25

PAULDING, CHAS. P. Practical Laws and Data on Condensation of Steam in Covered and Bare Pipes. 8vo, cloth, illustrated. 102 pages. *net*, \$2.00

— The Transmission of Heat through Cold-storage Insulation. Formulas, Principles, and Data relating to Insulation of every kind. A Manual for Refrigerating Engineers. 12mo, cloth. 41 pages, illustrated. *net*, \$1.00

PERRINE, F. A. C., A.M., D.Sc. Conductors for Electrical Distribution; Their Manufacture and Materials, the Calculation of the Circuits, Pole Line Construction, Underground Working and other Uses. With diagrams and engravings. *Second Edition, revised.* 8vo, cloth. *net*, \$3.50

PERRY, JOHN. Applied Mechanics. A Treatise for the Use of Students who have time to work experimental, numerical, and graphical exercises illustrating the subject. 650 pages. 8vo, cloth. *net*, \$2.50

PLATTNER. *Manual of Qualitative and Quantitative Analysis with the Blow-Pipe.* From the last German edition revised and enlarged, by Prof. Th. Richter, of the Royal Saxon Mining Academy. Translated by Prof. H. B. Cornwall, assisted by John H. Caswell. Illustrated with 78 woodcuts. *Eighth Edition, revised.* 463 pages. 8vo, cloth. net, \$4.00

POPE, F. L. *Modern Practice of the Electric Telegraph.* A Technical Handbook for Electricians, Managers, and Operators. *Seventeenth Edition, rewritten and enlarged, and fully illustrated.* 8vo, cloth. \$1.50

PRELINI, CHARLES. *Tunneling. A Practical Treatise* containing 149 Working Drawings and Figures. With additions by Charles S. Hill, C.E., Associate Editor "Engineering News." *Third Edition, revised.* 8vo, cloth, illustrated. \$3.00

— *Earth and Rock Excavation. A Manual for Engineers, Contractors, and Engineering Students.* *Second Edition, revised.* 8vo, cloth, illustrated. 350 pp. net, \$3.00

— *Retaining Walls and Dams.* 8vo, cloth, illustrated.
In Press

PRESCOTT, Prof. A. B. *Organic Analysis. A Manual of the Descriptive and Analytical Chemistry of Certain Carbon Compounds in Common Use; a Guide in the Qualitative and Quantitative Analysis of Organic Materials in Commercial and Pharmaceutical Assays, in the Estimation of Impurities under Authorized Standards, and in Forensic Examinations for Poisons, with Directions for Elementary Organic Analysis.* *Fifth Edition.* 8vo, cloth. \$5.00

— *Outlines of Proximate Organic Analysis, for the Identification, Separation, and Quantitative Determination of the more commonly occurring Organic Compounds.* *Fourth Edition.* 12mo, cloth. \$1.75

— *First Book in Qualitative Chemistry.* Twelfth edition. 12mo, cloth. net, \$1.50

— and **OTIS COE JOHNSON.** *Qualitative Chemical Analysis. A Guide in Qualitative Work, with Data for Analytical Operations and Laboratory Methods in Inorganic Chemistry. With an Appendix by H. H. Willard, containing a few improved methods of analysis.* *Sixth revised and enlarged Edition, entirely rewritten.* 8vo, cloth. net, \$3.50

PROST, E. *Manual of Chemical Analysis as Applied to the Assay of Fuels, Ores, Metals, Alloys, Salts, and other Mineral Products.* Translated from the original by J. C. Smith. Part I, Fuels, Waters, Ores, Salts, and other mineral industrial products; Part II, Metals; Part III, Alloys. 8vo, cloth. net, \$4.50

RANKINE, W. J. MACQUORN, C.E., LL.D., F.R.S. *Machinery and Mill-work.* Comprising the Geometry, Motions, Work, Strength, Construction, and Objects of Machines, etc. Illustrated with nearly 300 woodcuts. *Seventh Edition.* Thoroughly revised by W. J. Millar. 8vo, cloth. \$5.00

— *The Steam-Engine and Other Prime Movers.* With diagrams of the Mechanical Properties of Steam. With folding plates, numerous tables and illustrations. *Fifteenth Edition.* Thoroughly revised by W. J. Millar. 8vo, cloth. \$5.00

— *Useful Rules and Tables for Engineers and Others.* With appendix, tables, tests, and formulae for the use of Electrical Engineers. Comprising Submarine Electrical Engineering, Electric Lighting, and Transmission of Power. By Andrew Jamieson, C.E., F.R.S.E. *Seventh Edition.* Thoroughly revised by W. J. Millar. 8vo, cloth. \$4.00

— *A Mechanical Text-Book.* By Prof. Macquorn Rankine and E. E. Bamber, C.E. With numerous illustrations. *Fourth Edition.* 8vo, cloth. \$3.50

— *Applied Mechanics.* Comprising the Principles of Statics and Cinematics, and Theory of Structures, Mechanics, and Machines. With numerous diagrams. *Seventeenth Edition.* Thoroughly revised by W. J. Millar. 8vo, cloth. \$5.00

— *Civil Engineering.* Comprising Engineering, Surveys, Earthwork, Foundations, Masonry, Carpentry, Metal-Work, Roads, Railways, Canals, Rivers, Water-Works, Harbors, etc. With numerous tables and illustrations. *Twenty-first Edition.* Thoroughly revised by W. J. Millar. 8vo, cloth. \$6.50

RATEAU, A. *Experimental Researches on the Flow of Steam Through Nozzles and Orifices, to which is added a note on The Flow of Hot Water.* Authorized translation by H. Boyd Brydon. 12mo, cloth, illustrated. net, \$1.50

RAUTENSTRAUCH, W. *Syllabus of Lectures and Notes on the Elements of Machine Design.* With blank pages for Note-taking. 8vo, cloth, illustrated. net, \$2.00

RAYMOND, E. B. Alternating Current Engineering Practically Treated. 8vo, cloth, illustrated. 232 pp. *Second Edition, revised.*net, \$2.50

REINHARDT, CHAS. W. Lettering for Draughtsmen, Engineers, and Students. A Practical System of Free-hand Lettering for Working Drawings. *New and Revised Edition. Twenty-first Thousand.* Oblong boards. \$1.00

RICE, Prof. J. M., and JOHNSON, Prof. W. W. On a New Method of Obtaining the Differential of Functions, with especial reference to the Newtonian Conception of Rates of Velocities. 12mo, paper. \$0.50

RIPPER, WILLIAM. A Course of Instruction in Machine Drawing and Design for Technical Schools and Engineer Students. With 52 plates and numerous explanatory engravings. 4to, cloth. \$6.00

ROBINSON, S. W. Practical Treatise on the Teeth of Wheels, with the theory and the use of Robinson's Odontograph. *Third Edition, revised, with additions.* 16mo, cloth, illustrated. (Van Nostrand's Science Series.) \$0.50

SCHMALL, C. N. First Course in Analytical Geometry, Plane and Solid, with Numerous Examples. Containing figures and diagrams. 12mo, cloth, illustrated.net, \$1.75

— and **SHACK, S. M.** Elements of Plane Geometry. An Elementary Treatise. With many examples and diagrams. 12mo, half leather, illustrated.net, \$1.25

SEATON, A. E. A Manual of Marine Engineering. Comprising the Designing, Construction, and Working of Marine Machinery. With numerous tables and illustrations reduced from Working Drawings. *Fifteenth Edition, thoroughly revised, enlarged, and in part rewritten.* 8vo, cloth. \$6.00

— and **ROUNTHWAITE, H. M.** A Pocketbook of Marine Engineering Rules and Tables. For the use of Marine Engineers and Naval Architects, Designers, Draughtsmen, Superintendents, and all engaged in the design and construction of Marine Machinery, Naval and Mercantile. With diagrams. *Seventh Edition, revised and enlarged.* Pocket size. Leather. \$3.00

SEIDELL, A. Solubilities of Inorganic and Organic Substances; a handbook of the most reliable quantitative solubility determinations. 12mo, cloth. *In Press.*

SEVER, Prof. G. F. Electrical Engineering Experiments and Tests on Direct-Current Machinery. With diagrams and figures. *Second Edition.* 8vo, pamphlet, illustrated.net, \$1.00

— and **TOWNSEND, F.** Laboratory and Factory Tests in Electrical Engineering. *Second Edition, thoroughly revised and rewritten.* 8vo, cloth, illustrated. 236 pp.net, \$2.50

SEWALL, C. H. Lessons in Telegraphy. For use as a text-book in schools and colleges, or for individual students. Illustrated. 12mo, cloth. \$1.00

SHELDON, Prof. S., Ph.D., and MASON, HOBART, B.S. Dynamo Electric Machinery; its Construction, Design, and Operation. Direct-Current Machines. *Sixth Edition, revised.* 8vo, cloth, illustrated.net, \$2.50

— Alternating Current Machines. Being the second volume of the authors' "Dynamo Electric Machinery; its Construction, Design, and Operation." With many diagrams and figures. (Binding uniform with volume I.) *Fourth Edition.* 8vo, cloth, illustrated.net, \$2.50

SHIELDS, J. E. Notes on Engineering Construction. Embracing Discussions of the Principles involved, and Descriptions of the Material employed in Tunneling, Bridging, Canal and Road Building, etc. 12mo, cloth. \$1.50

SHUNK, W. F. The Field Engineer. A Handy Book of practice in the Survey, Location and Track-work of Railroads, containing a large collection of Rules and Tables, original and selected, applicable to both the Standard and Narrow Gauge, and prepared with special reference to the wants of the young Engineer. *Eighteenth Edition, revised and enlarged.* With addenda. 12mo, morocco, tucks. \$2.50

SNELL, ALBION T. Electric Motive Power: The Transmission and Distribution of Electric Power by Continuous and Alternate Currents. With a section on the Applications of Electricity to Mining Work. 8vo, cloth, illustrated.

SNOW, W. G., and NOLAN, T. Ventilation of Buildings. 16mo, cloth. (Van Nostrand's Science Series.) \$0.50

STAHL, A. W., and WOODS, A. T. Elementary Mechanism. A Text-Book for Students of Mechanical Engineering. *Fifteenth Edition, enlarged.* 12mo, cloth. \$2.00

STALEY, CADY, and PIERSON, GEO. S. The Separate System of Sewerage; its Theory and Construction. With maps, plates, and illustrations. *Third Edition, revised and enlarged.* 8vo, cloth. \$3.00

STODOLA, Dr. A. The Steam-Turbine. With an appendix on Gas Turbines and the future of Heat Engines. Authorized Translation from the *Second Enlarged and Revised German Edition* by Dr. Louis C. Loewenstein. 8vo, cloth, illustrated. 434 pp. net, \$4.50

SWOOPPE, C. WALTON. Practical Lessons in Electricity. Principles, Experiments, and Arithmetical Problems. An Elementary Text-Book. With numerous tables, formulæ, and two large instruction plates. *Seventh Edition.* 8vo, cloth, illustrated. net, \$2.00

THURSO, J. W. Modern Turbine Practice and Water-Power Plants. With eighty-eight figures and diagrams. 8vo, cloth, illustrated. net, \$4.00

TOWNSEND, F. Short Course in Alternating Current Testing. 8vo, pamphlet. 32 pp. net, \$0.75

TRINKS, W., and HOUSUM, C. Shaft Governors. 16mo, cloth, illustrated. (Van Nostrand's Science Series.) \$0.50

URQUHART, J. W. Dynamo Construction. A practical handbook for the use of Engineer-Constructors and Electricians in charge, embracing Framework Building, Field Magnet and Armature Winding and Grouping, Compounding, etc., with examples of leading English, American, and Continental Dynamos and Motors; with numerous illustrations. 12mo, cloth. . . \$3.00

WARREN, F. D. Handbook on Reinforced Concrete. 16mo, cloth, 271 pp., illustrated. net, \$2.50

WALLING, B. T., Lieut.-Com., U.S.N., and MARTIN, Julius. Electrical Installations of the United States Navy. 8vo, cloth. *In Press*

WEBB, H. L. A Practical Guide to the Testing of Insulated Wires and Cables. *Fifth Edition.* Illustrated. 12mo, cloth. \$1.00

WEISBACH, JULIUS. A Manual of Theoretical Mechanics. *Ninth American Edition.* Translated from the fourth augmented and improved German edition, with an introduction to the Calculus by Eckley B. Cox, A.M., Mining Engineer. 1100 pp. and 902 woodcut illustrations. 8vo, cloth. \$6.00
Sheep. \$7.50

— and **HERRMANN, G.** Mechanics of Air Machinery. Authorized translation with an appendix on American practice by Prof. A. Trowbridge. 8vo, cloth, 206 pp., illustrated. net, \$3.75

WESTON, EDMUND B. Tables Showing Loss of Head Due to Friction of Water in Pipes. *Third Edition.* 12mo, leather. \$1.50

WILSON, GEO. Inorganic Chemistry, with New Notation. *Revised and enlarged by H. G. Madan. New Edition.* 12mo, cloth. \$2.00

WRIGHT, Prof. T. W. Elements of Mechanics, including Kinematics, Kinetics, and Statics. *Seventh Edition, revised.* 8vo, cloth. \$2.50

— and **HAYFORD, J. F.** The Adjustment of Observations by the Method of Least Squares, with Applications to Geodetic Work. *Second Edition.* 8vo, cloth, illustrated. . . . net, \$3.00

