(10955) F. W. B. asks: 1. Please give (in substance) an explanation of the phenomena of rotating storms, such as whirlwinds, cyclones, etc. Do they always rotate in one direction, and why? A. The rotation of storms is caused by the rotation of the earth on its axis. In the northern hemisphere these storms rotate in a direction opposite to the motion of the hands of a clock; in the southern hemisphere they turn with the hands of a clock. All cyclones, hurricanes, tornadoes, etc., follow the same law. 2. Is it possible for a whirlwind to rotate for a time in one direction, and then reverse and whirl in the opposite? I ask this last especially for the reason that two reputable persons of my acquaintance claim to have seen this phenomenon. A. Small whirlwinds, such as form in a field or at a street corner, probably turn in either direction; but if one was seen to rotate one way, and in a brief time another was seen in the same place turning in the opposite direction, we should consider that these were two different whirlwinds, and not a whirlwind which had reversed itself.

NEW BOOKS, ETC.

We have received from Knowledge, 27 Chancery Lane, London, W. C., a circular slide rule devised by Major B. Baden-Powell. The instrument consists of two similarly figured dials, an outer fixed one and an inner rotatable one. These are graduated in logarithmic sequence, and the numbers are arranged in spirals, so that the decimals coincide, as in all slide rules. While not professing to be an absolutely exact calculating machine, this simple appliance ought to prove of the greatest use in everyday life. It is so simple in action, so compact, and yet so reliable, that it should find a place on the writing table of all those who have frequent calculations to make. Not only does it enable one very rapidly to obtain approximate results, even with large figures, in multiplication and division, but for those who have to deal with foreign measures and wish to know, almost at a glance, the equivalent in English measures, this should prove helpful. One advantage of this form of apparatus may be noted, that any special measures which have to be converted, such as rubles to pounds, carats to grains, or kilowatts to horse-power, can be temporarily marked on the card. The equivalent fractions of decimals, proportions, and square roots are also easily found.

THE MODIFICATION OF ILLINOIS COAL BY LOW TEMPERATURE DISTILLATION. By S. W. Parr and C. K. Francis. University of Illinois Engineering Experiment Station. Urbana, Ill.: Published by the University. 8vo.; Pp. 48.

The details of this paper are many and intricate, and the conclusions rather vague and unimportant. The main conclusion appears to be that coal can be made more available for certain purposes by treatment, but neither the cost of the treatment nor the total B.T.U. of the evolved gases is given. In fact, the research is incomplete and hardly ripe for presentation.

ELECTRICITY: WHAT IS IT? By W. Denham Verschoyle, M.E., M.I.M.E., M.A.I.M.E. London: Swan Sonnenschein & Co., Lim. New York: The Macmillan Company, 1908. 16mo.; cloth; 259 pages; illustrated. Price, $1.

A purely theoretical position has been taken by the author in discussing the question: What is electricity? In seeking the laws that regulate the intermediate action of energy and matter the finding of new facts has been subordinate to generalization through chapters on the gyron, atom, molecule, heat and light, electricity and magnetism, dissociation and devolution, and life. The importance of theoretical work in the new science as demonstrated in this volume may cause additional attention to be drawn to it when known that the tables and general conclusions have received a measure of confirmation in the work of Sir William Ramsay. Spectrum analysis is dealt with in the appendix.

CEMENT LABORATORY MANUAL. A Manual of Instructions for the Use of Students in Cement Laboratory Practice. By L. A. Waterbury, C.E. New York: John Wiley & Sons, 1908. 12mo.; 122 pages, 28 figures. Price, $1.

This manual has been prepared for the use of students taking the course in cement laboratory practice in the University of Illinois, and for the use of others who may have occasion to use such a laboratory manual. Instructions for the problems originally used in the course mentioned were devised by Ira O. Baker, professor of civil engineering, University of Illinois, under whose direction the author had charge of the cement laboratory at that institution for three years. This manual has been prepared by revising and extending the instructions already in use. The problems which are given herein are suitable to class use and are not intended to serve as instructions for the testing of cements for commercial purposes. However, the problems have been designed to include all of the tests which are ordinarily made, so that a student who shall have completed these problems should be able to do testing for commercial purposes, although the experience which is required for the production of uniformly satisfactory results in the latter class of work can be obtained only by a considerable amount of practice, and cannot be obtained to any considerable extent by a laboratory course which is intended chiefly to teach methods of testing.

ELEMENTS OF RAILROAD TRACK AND CONSTRUCTION. By Winter L. Wilson. New York: John Wiley & Sons, 1908. 12mo.; 320 pages, 181 figures. Price, $2.

In this volume no attempt has been made to treat the subjects of railroad track and construction with any considerable amount of detail, but rather to present a few of the fundamental principles in such manner that the inexperienced engineering student can form a general idea of the subjects. There are a number of excellent treatises on track which go into the subject with a wealth of detail and a thoroughness of discussion which is of immense value to the maintenance-of-way engineer with some experience; but, unfortunately, these books are not suitable for class-room work, both on account of the student not being able to appreciate the value of the details and also on account of the impossibility of reading these books in the time usually given to such subjects in an engineering course. Details of practice can be much more readily learned and appreciated from actual experience. There is not much time in the four years of an engineering course that can economically be given to the details of practice, but it is essential that the student should understand the fundamental principles of the subjects. In this volume some of the general principles of track and of the part of railroad construction with which the young engineer may come in contact early in his experience are presented.

HIGHWAY ENGINEERING. By Charles E. Morrison, A.M., C.E. New York: John Wiley & Sons, 1908. 8vo.; 315 pages, 60 figures. Price, $2.50.

This was prepared for the second-year students of the department of civil engineering at Columbia University, with a view to furnishing a test in which the fundamentals of the subject should not be buried in a mass of detail, such as is frequently found to be the case in works of a similar character. This book is, therefore, not a reference work, but rather one in which it has been the endeavor to outline and emphasize those basic principles which are essential to good highways.

THE ENGINEERS' DESCRIPTIVE CHARTS IN COLORS. Showing the Development of the Steam Boiler. Showing the Development of the Steam Engine. Showing the Development of the Electric Generator. By Joseph G. Branch, B.S., M.E., Author of Stationary Engines, Conversations on Electricity, etc. New York and Chicago: Rand, McNally & Co., 1908. 28½x22 inches; illustrated. Price, 50 cents each.

The charts are clearly illustrated and effectively printed in three colors. The development of the subjects is both technical and historical and the charts will prove to be an invaluable aid to all engineers, firemen, machinists, students, and electricians.

STEAM POWER PLANT ENGINEERING. By G. F. Gebhardt. New York: John Wiley & Sons, 1908. 8vo.; 816 pages, 461 figures. Price, $6.

This book is the outcome of a series of lectures delivered to the Senior class of the Armour Institute of Technology, Chicago, Ill. It is primarily intended as a text-book for engineering students, but, it is hoped, will also be of interest to practising engineers. The field embraced by the title is a large one and it has been necessary to limit the treatment to essential elements. Much of the matter contained in the author's original notes, including that relating to steam engine design, valve gears, steam boiler design, and the like, has therefore been omitted. The numerous references appearing throughout the text and the appended bibliographies, which have been carefully compiled, are depended upon to extend the scope of the work. The standard codes of the American Society of Mechanical Engineers for conducting engine and boiler trials are in frequent demand by engineers and have therefore been included as an appendix. Authorities have been freely consulted and extensive use made of current engineering literature, due acknowledgment being made by footnote or reference whenever possible. The matter included is representative of American practice and no effort has been made to include any other except in a few special cases.

LONG ODDS. By Harold Bindloss. Boston, 1908. 12mo.; 401 pages. Price, $1.50.

This latest and best book by this popular teller of tales is a story of splendid endeavor, the scene Portuguese West Africa. A promise to a dying partner sends the Quixotic hero out into the steaming jungle on an errand of freedom and into innumerable perils which thrill the imagination with the strange ways of the mysterious and fascinating Dark Continent. The vivid picture of the so-called contract labor conditions, which amount to Negro slavery, is of particular value to everyone interested in the Congo reform movement. There is an American missionary of fine heroism whose acquaintance every American will gladly make, and the absorbing love story holds the reader enthralled.

HERCULANEUM, PAST, PRESENT AND FUTURE. By Charles Waldstein, Litt. D., Ph.D., L.H.D., and Leonard Shoobridge, M.A. With Appendices. London and New York: The Macmillan Company, 1908. Illustrated. Imperial 8vo.; 324 pages. Price, $5.

Dr. Waldstein has written an exciting book, says the New York Tribune. Archæology has always had more romance about it than the prosaic layman has been prepared to admit, but in the present instance it makes a peculiarly alluring appeal. If it stirs the blood to think of what the excavator feels when he uncovers a single tomb in Egypt it is positively thrilling to contemplate the possibilities summed up in the name of that Campanian town which was buried by an eruption of Vesuvius in 79 A. D., and has been left almost undisturbed in its sleep ever since. There are reasons why we are justified in believing that Herculaneum, if fully uncovered, would yield treasures of art and other vestiges of the ancient past incomparably richer than those dug up at Pompeii. The Italian government has committed itself to excavate Herculaneum on its own responsibility. The work will necessarily be slow. It requires prodigious sums, which only the nations of the world, acting together, could supply. No better contribution could be made toward a movement culminating in such a scheme than is made in these pages. Obviously, excavation at Herculaneum should reveal innumerable objects for a few hundred to be found at Pompeii. Furthermore, the two towns suffered in distinctly different degrees from the malice of Vesuvius. Herculaneum is a mile and a quarter nearer than Pompeii to the foot of the volcano. Pompeii suffered enough in all conscience, but she got off with, on the whole, less damage. Now what happened at Herculaneum? With overwhelming suddenness a sea of liquid mud swept over the town and buried it to a depth of about eighty feet.

THE BOOK OF THE PANSY, VIOLA, AND VIOLET. By Howard H. Crane. New York: John Lane Company, 1908. 16mo.; 106 pp. Price, $1.

The beautiful flowers of the pansy, that we are now accustomed to see in nearly every garden worthy of the name, were not evolved in one short space of time. They are the outcome of many years of persistent effort on the part of a comparatively few enthusiasts, who, by dint of infinite patience and labor, have helped to evolve the glorious blooms that are now so largely grown. The pansy dates only from 1813. With careful breeding the pansy was evolved from the heart's-ease. The book deals with everthing relating to the pansy, the viola, and the violet.

LES NOUVEAUX LIVRES SCIENTIFIQUE ET INDUSTRIELS. Vol. I. Annees 1902 à 1907. Livraisons 1 à 20. Bibliographie des Ouvrages publiés en France. Du 1er Juillet, 1902, au Juin, 1907. 1° Table alphabétique des sujets traités. 2° Table alphabétique des noms d'auteurs. 3° Livraisons trimestrielles (Nos. 1 à 20). Paris: H. Dunod et E. Pinat, Editeurs, 1908.

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Locomotive mover, J. F. Cameron 900,912
Log grab, D. W. Murphy 901,304
Loom harness, brushing machine for, M. Fish 900,994
Lubricating apparatus, C. B. Royal 900,887
Lubricating device for shafts, etc., H. C. Gamage 900,922
Magnesia, preparing concentrated hydrated, W. S. Morrison 900,868
Magnesium by electrolysis, production of, Seward & von Kugelgen 900,961
Mail bag catching and delivering apparatus, H. W. Brown 901,150
Mail bags from a moving train to a station, apparatus for transferring, N. F. Valentine 901,219
Mail box, C. E. Mendenhall 900,756
Mail box, W. C. Groenke 900,848
Mail catcher, R. R. Roth 901,042
Mailing tube, J. A. Murphy 901,305
Manicure implement, T. Miller 900,758
Manure pouch, W. A. Roberts 900,783
Maps, charts, etc., roller for, H. W. Patton 901,035
Marker, dry goods, E. Packer 900,880
Match box, A. W. Aylsworth 900,819
Meat chopping and pounding machine, O. Talton 901,267
Mechanical chair, S. G. Wilson 900,813
Mechanical movement, A. R. Patten 901,032
Metal crimping machine, J. J. Walter 901,131
Metal frame, Hochuli & Bousquet 900,734
Metal shears, W. H. Clites 900,983
Metallic bodies, plating, G. A. Goodson 900,847
Metallic body, plated, G. A. Goodson 900,846
Metallic fabric, C. E. Bedient 900,697
Metallurgical furnace, W. S. Dempsey 900,916
Mica splitting machine, B. Walchner 901,130
Mine trackage system, F. R. Willson, Jr 900,903
Moistening device, B. F. Leiser 900,748
Mold, W. N. Wayman 901,133
Mold fastening device, J. H. Sullivan 901,209

Molding devices, riser lining for, E. C. Washburn 900,970
Motor controlling apparatus, M. C. Regan 901,189
Motors, platform for power, A. Nacke 901,025
Music roll and apparatus to be used in connection therewith, H. P. Ball 901,275
Musical instruments, pneumatic action for, J. P. Caulfield 901,068
Musical instruments, pneumatic action for, M. S. Wright 901,273
Nailing machines, automatic nailing device for, C. Sattler 901,192
Newspapers, machine for feeding off, G. L. Richards 900,782
Noodle cutter, W. I. Whitehurst 900,808
Nut lock, F. C. Tambling 900,796
Nut, quick release, W. & F. G. Folberth 900,843
Oil furnace, E. A. Barnes 900,695
Oil press, J. L. Hiegel 900,927
Optometer, C. Edewaard 900,715
Oven, machine for filling breadstuffs into or on an, J. Dempsey 901,077
Overshoe clamp, E. W. Waltz 901,132
Package tie, A. H. Lageson 900,746
Package tie, T. E. Lewis 901,112
Packing for explosion engines, piston, J. J. McGee 901,023
Paper box, G. R. Wyman 900,904
Paper box, Ferres & Fairchild 901,286
Paper cutting machine, G. Fomm 901,088
Paraffin, apparatus for coating receptacles with, L. A. Wobbrock 900,815
Paste receptacle, G. L. Belcher 901,061
Paving, wood block, W. H. Harvey 900,729
Pen, fountain, A. T. Cross 900,833
Pen, fountain, J. J. Mead 900,944
Pens, etc., to garments, device for securing fountain, J. H. Hagan 901,240
Penholder, J. H. Hagan 901,239
Pencil holder, J. A. Eubanks 900,716
Phonograph and picture exhibiting machine, combined, I. W. Norcross 900,875
Phonograph apparatus, automatic, I. W. Norcross 900,876
Phonography, I. Kitsee 900,934
Photographic apparatus, F. C. Bradburn 901,308
Photographic apparatus, F. C. Bradburn, et al 901,309
Photographic plates, developing package for, A. B. Sheppard 901,203
Photographic plates, device for transferring, A. B. Sheppard 901,201
Photographic plates, packing box for, A. B. Sheppard 900,200
Piano, self-playing grand, J. W. Darley, Jr. 901,281
Pianos, device for use in obtaining bridge bearings in constructing, E. C. Sager 901,262
Pianos, pedal for automatically operated, J. Sampere 901,125
Pictures and photographic printing plates, producing, W. Triepel 901,218
Pigeon hole spacer, Chelson & Benedict 901,069
Pile protector, W. Howe 900,929
Piling, metal, J. J. Harold 901,241
Pin. See Towel pin.
Planting machine tables, shield for the post holes in, W. N. Bauer 900,976
Plant marker, L. Willis 901,137
Planter, S. P. Forcier 901,235
Planter, corn, A. E. Peterson 901,257
Planter, cotton, J. W. Crawford 901,072
Planter, seed, B. F. Robinson 900,784
Planter, tobacco, J. T. Crenshaw 901,279
Planters, riding attachment for corn, J. F. Maier 901,181
Plastic materials, machine for making blocks, plates, etc., from, Hughes & Quinlan 901,296
Plow, B. A. Chilson 900,981
Plow, T. Sawatzky 901,193
Plow, Vose & Harryman 901,220
Plow attachment, F. Evans 900,992
Plow, gang, Falk & Anderson 900,919
Pocket knife, G. L. McVey 901,253
Potato digging machine, F. Bateman 901,145
Prepayment meter, W. H. Pratt 900,777
Printing machine, blue, C. de Lukacsevics 901,303
Printing machine, fabric, Berthet & Berthonnet 900,978
Printing press, W. P. Quentell 901,186
Printing press, A. E. Dowell 901,312
Printing press, platen, F. Waite 900,805
Printing presses, printing or plate cylinder for rotary, W. K. Hodgman 901,295
Propeller, screw, D. W. Taylor 900,797
Propellers and propeller blades, apparatus for machining helical surfaces, such as those of, W. N. Venner 900,804
Protractor, H. O. Losch 901,113
Pulp machine, M. Hanson 901,168
Pulp or paper making machines, hydraulic pressing device for application to the press rolls of, J. L. Coenen 900,985
Pulverizer, soil, S. D. Beum 900,822
Pump, centrifugal, G. Sulzer 900,966
Pump, duplex, L. Willis 901,138
Pump, oil well, C. Dickinson 901,282
Pump, turbo, G. B. Collier 901,228
Pumping and compressing apparatus for aeriform fluids, H. M. Domecq-Cazaux 900,988
Radio active composition, R. Keil 901,177
Rail bond terminals, mold for casting, W. B. Cleveland 901,227
Rail fastener, D. H. Turnbaugh 901,128
Rail joint and anti-rail spreader, combined, A. H. Newpher 901,026
Railway and other vehicles, automatic coupling for, G. J. Coles 901,071
Railway and road vehicle, R. C. Sayer 901,194
Railway crossing, J. H. Hand 901,292
Railway rail stay, S. R. Bryan, reissue 12,862
Railway safety appliance, electric, R. K. Richardson 900,958
Railway switch, H. B. Nichols 901,254
Railway tie, metal and wood combined, J. Fenderson 900,841
Railway ties, wear plate for, S. Clary 900,982
Railways, system of electrically controlled signals for, Paul & Ducousso 901,122
Rasp or foot leveler, horse, F. B. Gardner 901,290
Razor, safety, Bell & Uhle 901,062
Receptacle, F. Weisenberg 900,901
Reclining chair, J. H. Mills 900,945
Register hook, A. Kyle 901,110
Relay, I. Kitsee 900,743
Reversing mechanism, A. P. Crell 900,832
Reversing mechanism, T. H. & J. E. Holgan 901,172
Rocking chair, nursery, A. D. Simmonds 900,788
Rocking chair, rotary, G. G. Frey 901,090
Roller mill feed mechanism, W. H. Smith 900,790
Rolling mill, universal, F. I. Ellis 901,233
Rolling mills, screw down mechanism for, E. J. McIlvried 901,251
Rotor construction, B. Elshoff 900,839
Rubber goods, apparatus for curing or vulcanizing, Hopkinson & Midgley 901,006
Rubber sandal, A. O. Bourn 901,064
Sad iron, J. M. Harper 900,850
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Safe or vault door, E. A. Strauss 901,047
Safety elevator, J. R. Norman 900,878
Sail hank, S. A. Jackson 900,737
Salt cellar, W. Bumm 900,911
Sash lock, C. L. Hobbs 901,102
Sash weight, W. G. Withers 901,053
Sash weight and pulley, R. D. Nee 900,770
Scaffold bracket, self-clamping, F. H. Dettmann 901,158
Scale, W. G. Templeton 900,895, 900,896
Scale, weighing, L. Jaenichen 901,297
Sea wall, F. O. Ray 901,040
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Self-playing instrument, A. J. Bluntach 900,824
Sewing machine bed plate, C. Winkel 901,052
Sewing machines, weft channeling attachment for sole, M. E. Haradon 900,925
Shade tool, window, H. B. Kerr 900,741
Sharpening disks and colters, apparatus for, E. E. & W. E. Combs 900,707
Shaving mug, J. W. Dyer 901,082
Sheave block, J. Bass 901,144
Shed ventilator, F. J. Nies 901,120
Sheet metal, method and machine for stretching slitted, F. J. Wendell 900,902
Shingle molding machine, W. Pugh 900,778
Shoe polishing apparatus, E. M. Scranton 901,265
Shoe polishing machine, J. A. Brewer 900,825
Shot for shotguns, case, B. Camet 900,913

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Inquiry No. 8806.—For manufacturers of drawing materials.

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Inquiry No. 8823.—For manufacturers of crepe paper and paper novelties.

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Telephone hook switch, H. Tideman, 901,212 to	901,214
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Telephone ringer, H. Tideman, 901,215, 901,216,	901,269
Telephone transmitter muffler, G. Kracker	901,108
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Tie bolder, W. J. Rosborough	900,960
Tie tamper, F. J. Gilroy	900,721
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Tobacco stemming machine, A. Grodsky	901,000
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Tubes, mechanism for feeding conical, B. W. Tucker	900,900
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Turbine rotor, W. A. Bole	900,700
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Typewriting machine, J. H. Jackson	900,931
Typewriting machine, M. W. Pool	901,259
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Valve, G. M. Davis	900,987
Valve, E. V. Anderson	901,222
Valve, air vent, G. D. Hoffman	901,242
Valve, flushing, H. S. Gaskill	900,997
Valve for gas engines, admission, G. B. Petsche	901,256
Valve for internal combustion engines, Bourne & Rees	901,277
Valve for locomotives, combined check and cut-off, G. B. Eddy	900,989
Valve, gate, G. H. Benton	901,146
Valve gear, locomotive, W. S. Brown	901,066
Valve, relief, J. Erwood	901,084
Valve, soft plug, W. Baker	901,142
Valve, steam, W. Baker	901,141
Vegetables, apparatus for treating, C. S. Kierstead	901,011
Vehicle, motor, Allen & Conly	901,055
Vehicle wheel, G. Sommers	900,891
Vehicles, obstacle removing device for, Loveless & Samways	901,114
Vehicles, transmission mechanism for motor, C. M. Leech	901,180
Vending machine, etc., coin controlled, A. D. Grover	900,924
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Ventilator, A. Darroch	901,075
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Voting machines, grouping mechanism for, C. C. Abbott	900,906
Voting machines, interlocking member for, C. C. Abbott	900,905
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Wagon, dumping, A. N. Putney	901,260
Washing machine, W. D. Whitney. 900,809,	901,051
Water closet, H. W. Charlton	900,831
Water closet flushing apparatus, F. C. Nickol	901,185
Water closet tank lining, C. Pfau	900,775
Water elevator, F. A. Grunow	901,238
Water fixture and controlling means therefor, R. D. Albright	900,818
Water heater, Nelson & Lee	900,873
Water motor, J. A. McManus	901,117
Weighing apparatus, automatic, P. Edtbauer	900,990
Well cleaning device, oil, F. A. Flanegin	901,287
Well drilling apparatus, R. D. Moon	901,182
Well drilling apparatus, J. Conlan	901,229
Wind actuated ventilator, J. Escher	901,085
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