TWENTY-SIXTH YEAR

THE

ENGINEERING INDEX

ANNUAL

FOR

1909

TRANSPORTATION LIBRARY

COMPILLED FROM THE ENGINEERING INDEX PUBLISHED MONTHLY IN THE ENGINEERING MAGAZINE DURING 1909

NEW YORK AND LONDON

THE ENGINEERING MAGAZINE.

1910
COPYRIGHT, 1910.

BY

JOHN R. DUNLAP

ENTERED AT STATIONERS' HALL
THE ENGINEERING INDEX

Volume I., 1884 to 1891 inclusive, . . . Out of Print
475 pages. Edited and published by The Association of
Engineering Societies under the direction of Prof. J. B.
Johnson.

Volume II., 1892 to 1895 inclusive, . . . Out of Print
474 pages. Edited by The Association of Engineering
Societies under the direction of Prof. J. B. Johnson, and
published by The Engineering Magazine.

Volume III., 1896 to 1900 inclusive, . . . . $7.50
1,030 pages. Edited and published by The Engineering
Magazine.

Volume IV., 1901 to 1905 inclusive, . . . . $7.50
1,234 pages. Edited and published by The Engineering
Magazine.

THE ENGINEERING INDEX ANNUAL FOR 1906, . . . $2.00
412 pages. Edited and published by The Engineering
Magazine.

THE ENGINEERING INDEX ANNUAL FOR 1907, . . . $2.00
450 pages. Edited and published by The Engineering
Magazine.

THE ENGINEERING INDEX ANNUAL FOR 1908, . . . $2.00
460 pages. Edited and published by The Engineering
Magazine.

THE ENGINEERING INDEX ANNUAL FOR 1909, . . . $2.00
490 pages. Edited and published by The Engineering
Magazine.

The monthly continuation of the Index, from the close of
1909, is to be found in the successive issues of The Engineering
Magazine.

THE ENGINEERING MAGAZINE

140-142 NASSAU STREET, NEW YORK.
KEAN STREET, ALDWYCH, LONDON.
THE

ENGINEERING MAGAZINE

SPECIALY DEVOTED TO THE INTERESTS OF

Engineers, Superintendents and Managers

CONTAINING

ORIGINAL ARTICLES—Illustrated

Prepared Exclusively for the Magazine by the Foremost Engineering Authorities in the World.

EXPERT REVIEWS

of the Most Important Publications Appearing Currently in the British, American and Continental Press.

THE ENGINEERING INDEX

Covering the Engineering Literature of the World month by month.

Subscription Price, 25' Cents a Copy, $3.00 a Year.

THE ENGINEERING MAGAZINE

140-142 NASSAU STREET, NEW YORK.
KEAN STREET, ALDWYCH, LONDON.
TO THE USER

WITH this volume of The Engineering Index—the eighth since the work was first undertaken and the fourth since it assumed the "Annual" form—a continuous index to the engineering and technical literature of the past twenty-six years is made available to the reader. And in this book, as in the volumes issued for the last four years, the "classified" system of arranging the items is followed in place of the "strict alphabetic" order of the earlier volumes. In other words, the articles indexed are first grouped under the great divisions of engineering practice to which they belong—Civil, Mechanical, Electrical, Mining, etc.—and under these again they are subgrouped according to the recognized special divisions of each field. After these two steps have been taken in sorting the miscellaneous literature of the day into closely related sections, the final arrangement under each section becomes strictly alphabetical.

This plan has always been followed in the monthly instalments of The Engineering Index as they have appeared in The Engineering Magazine, and it has found wide favor with the Magazine's readers. Experience with the Engineering Index Annuals for 1906, 1907 and 1908 proved that it was equally acceptable to the consultants of these volumes. In the 1909 Annual now presented, however, much additional care has been taken to serve the convenience of the users of the book. Thought and labor have been freely expended in the work of assembling the many thousand items so that articles on the same subject, though appearing at different times and in different periodicals, shall fall together as near as possible in the columns of the Annual. The classifications have been somewhat amplified and made more distinct. Cross references have been most freely used so that the searcher for any subject may find a sign post leading him direct to his goal, on every path he is at all likely to try; and the typography of these cross-reference notes has been devised so that they may be most quickly understood.

The chief purpose of the "classified" plan of indexing is to collate, for each specialist, the entire current literature of his subject and to assemble it in a small space, where it may be readily found and completely explored. The railway superintendent of motive power, for example, who wants to keep in touch with the latest work done in his department, does not have to plod through all railroad literature alphabetically from "Air-Brake" to "Wreck," looking up every possible word which might title an article of importance to him. He finds them all conveniently gathered into a brief space under the department of Railway Engineering and the sub-head Motive Power and
Equipment, and on the adjoining pages before and after he may see everything published during the month on the closely allied subjects of Conducting Transportation and of Permanent Way. It is like running his eye over the shelves of a well-managed library. The literature he wants to know about is all there; perhaps, also, something very important he had not yet heard of, and therefore could not have looked up in an alphabetical list, is brought directly to his notice by this very Classified Index. This is possibly one of the greatest services the INDEX renders to its regular users.

In addition to this, the retention of the classified form has the very important advantage of permitting the issue of the volume annually, immediately after the close of each year, while the matter indexed is still fresh and at its maximum of serviceability. The old through-and-through alphabetic arrangement required a radical re-editing of every item that had appeared in the monthly parts of The Engineering Magazine—so radical that it was practically equivalent to rewriting the entire work. In view of the limited outlet for the book, this undertaking was commercially inexpedient; professionally, it involved a heavy burden of service which could not be undertaken except at comparatively long intervals. It took about five years to recover from one volume and bring out another, and much of the literature of engineering becomes obsolete in five years.

The “Classification of the Index” facing the first page of the index notes should always be consulted before attempting to look up any given subject. The searcher will decide to which main division and sub-division of engineering the information he seeks logically belongs, and then turn to the page indicated in this “Classification.” It will be observed that the catch-words indicating the first and last items on each page run in alphabetical order throughout the division indicated by the running heads to the pages.

Serial articles are indexed upon the appearance of the first instalment only, thus giving the searcher the clue by which the succeeding articles can be found. This rule has been waived in some instances of articles in two or three instalments, which are indexed entire.

When the great number of subjects dealt with is considered; as well as the fact that many important articles include several subjects, it will be realized that the classification has in many instances necessarily been a compromise between conflicting conditions; but it is believed that the system as a whole will serve the great purpose which has always been kept in view, that of guiding the searcher to his destination with a minimum of labor and uncertainty.

The comprehensive scope of the INDEX will be seen upon examination of the list of periodicals included. This comprises about two hundred and fifty publications, representing seventeen nations and colonies and six languages. About three-fourths of these journals are printed in English, the others being in German, French, Spanish, Italian, and Dutch. With every entry a brief descriptive note is given defining the scope and purport of the article, and in many cases this is sufficient for the purposes of the investigator and saves him
TO THE USER

the labor of further search. In general, however, the Index is used as a guide to the otherwise overwhelming mass of information contained in the huge files of the engineering periodicals stacked on the shelves of reference libraries throughout the world. The assembled sets of the great technical journals brought together in libraries such as those of the United Engineering Societies or the American Society of Civil Engineers in New York, or of the British Institution of Civil Engineers, might well overwhelm the time and patience of any individual who would search there for special information of which he had need. By this volume and its predecessors he is guided swiftly and accurately to the exact point he wishes to reach.

The work as a whole represents the continuation of that originally started by the late Professor J. B. Johnson in the Journal of the Association of Engineering Societies in 1884, and turned over by that association to The Engineering Magazine at the close of 1895. The previous volumes, published in 1892, 1896, 1901, 1906, 1907, 1908, and 1909, respectively, covered with increasing fulness and thoroughness the field of periodical literature in engineering and closely related applied sciences. This latest volume brings the investigator down to the close of 1909, while the earlier parts enable searches such as occur in patent cases and the like to be prosecuted with a minimum of cost and delay.
REFERENCE LIST OF PERIODICALS

TITLES AND ABBREVIATIONS

In nearly every instance the abbreviated titles of periodicals indexed will be intelligible without further explanation, but in the following list all the titles are given, together with the addresses, in order that no possible difficulty may appear in the placing of references. The titles are arranged alphabetically in the order of the abbreviations, each being followed by the full title and place of publication. It is to be noted that \( w = \) weekly; \( s.w = \) semi-weekly; \( m = \) monthly; \( s.m = \) semi-monthly; \( b.m = \) bi-monthly; \( q = \) quarterly; \( yr = \) yearly.

Alliance Industrielle—Alliance Industrielle. \( m. \) Brussels.
Am Arch—American Architect. \( w. \) New York.
Am Engr & R R Jour—American Engineer and Railroad Journal. \( m. \) New York.
Am Gas Lght Jour—American Gas Light Journal. \( w. \) New York.
Amer Inst of Archts—American Institute of Architects. \( yr. \) New York.
Am Jour Sci—American Journal of Science. \( m. \) New Haven, Conn.
Am Mach—American Machinist. \( w. \) New York.
Am Rev of Revs—American Review of Reviews. \( m. \) New York.
Anales d l Soc Cien Argentina—Anales de la Sociedad Cientifica Argentina. \( m. \) Buenos Aires.
Ann d Ponts et Chaussées—Annales des Ponts et Chaussées. \( m. \) Paris.
Anna della Societa d Ing e d Arch Ital—Annali della Società degli Ingegneri e degli Architetti Italiani. \( s.m. \) Rome.
Arch Rec—Architectural Record. \( m. \) New York.
Arch Rev—Architectural Review. \( m. \) Boston, Mass.
Arch't—Architect. \( w. \) London.
Arch't & Build's Mag—Architect's and Builder's Magazine. \( m. \) New York.
Aust Min Stand—Australian Mining Standard. \( w. \) Melbourne.
Autocar—Autocar. \( w. \) Coventry, England.
Auto Jour—Automotor Journal. \( w. \) London.
Automobile—Automobile. \( m. \) New York.
Auto Topics—Automobile Topics. \( w. \) New York.

Beton u Eisen—Beton und Eisen. \( s.m. \) Vienna.
Boiler Maker—Boiler Maker. \( m. \) New York.
Brass Wld—Brass World. \( m. \) Bridgeport, Conn.
Br Build—Brick Builder. \( m. \) Boston, Mass.
REFERENCE LIST OF PERIODICALS.

Brit Columbia Min Rec—British Columbia Mining Record. m. Victoria, B. C.
Builder—Builder. w. London.
Bull Am Inst Min Engrs—Bulletin of the American Institute of Mining Engineers. b.m.
New York.
Bull Int Ry Cong—Bulletin of the International Railway Congress. m. Brussels.
Bull Sci—Bulletin Scientifique. m. Liége, Belgium.
Bull Tech d l Suisse Rom—Bulletin Technique de la Suisse Romande. s.m. Lausanne, Switzerland.
Bull Univ of Illinois—Bulletin of the University of Illinois. Urbana, Ill.
Bull Univ Kansas—Bulletin of the University of Kansas. b.m. Lawrence.
Bull Univ Wis—Bulletin of the University of Wisconsin. Madison, Wis.

Cal Jour of Tech—California Journal of Technology. m. Berkeley.
Can Arch—Canadian Architect. m. Toronto.
Can Elec News—Canadian Electrical News. m. Toronto.
Can Eng—Canadian Engineer. m. Toronto and Montreal.
Can Min Jour—Canadian Mining Journal. s.m. Toronto.
Cassier’s Mag—Cassier’s Magazine. m. New York and London.
Cement—Cement. b.m. New York.
Cement Age—Cement Age. m. New York.
Central Sta—Central Station. m. New York.
Chem, Met & Min Soc of S Africa—Chemical, Metallurgical and Mining Society of South Africa. m. Johannesburg.
Clay Rec—Clay Record. s.m. Chicago.
Cold Stor & Ice—Cold Storage and Ice. m. New York.
Col Guard—Colliery Guardian. w. London.
Col Univ Quar—Columbia University Quarterly. q. New York.
Com Veh—Commercial Vehicle. m. New York.
Compressed Air—Compressed Air. m. New York.
Con Rev—Contemporary Review. m. London.
Cons Repts—Consular Reports. m. Washington, D. C.
Cornell Civ Engr—Cornell Civil Engineer. m. Ithaca, N. Y.

Die Turbine—Die Turbine. s.m. Berlin.
Dom Eng—Domestic Engineering. w. Chicago.

Elec Age—Electrical Age. m. New York.
Elec Eng Lond—Electrical Engineer. w. London.
Elec Engng—Electrical Engineering. w. London.
Elec Jour—Electric Journal. m. Pittsburgh, Pa.
Elec’n Lond—Electrician. w. London.
REFERENCE LIST OF PERIODICALS.

Elec Rev Lond—Electrical Review. w. London.
Electrochem & Met Ind—Electrochemical and Metallurgical Industry. m. New York.
Elek Kraft u Bahnen—Elektrische Kraftbetriebe und Bahnen. w. Munich.
Elektrochem Zeitschr—Elektrochemische Zeitschrift. m. Berlin.
Elektrotech Rundschau—Elektrotechnische und Polytechnische Rundschau. w. Potsdam.
Elektrotech u Maschinenbau—Elektrotechnik und Maschinenbau. w. Vienna.
Elettricità—Elettricità. w. Milan.
Eng & Min Jour—Engineering and Mining Journal. w. New York.
Engng—Engineering. w. London.
Eng Rec—Engineering Record. w. New York.
Engr Lond—Engineer. w. London.

Foundry—Foundry. m. Cleveland, O.

Gas Engine—Gas Engine. m. Cincinnati, O.
Gas Engrs’ Mag—Gas Engineers’ Magazine. m. Birmingham, Eng.
Gas Wild—Gas World. w. London.
Génie Civil—Génie Civil. w. Paris.
Gesundheits-Ing—Gesundheits-Ingenieur. w. Munich, Bavaria.
Giesserei Zeit—Giesserei Zeitung. s.m. Berlin.
Gläser Ann—Gläser Annalen für Gewerbe und Bauwesen. s.m. Berlin.
Glückauf—Glückauf. w. Essen, Germany.

Heat & Ven Mag—Heating and Ventilating Magazine. m. New York.

Ice & Cold Stor—Ice and Cold Storage. m. London.
Ice & Refrig—Ice and Refrigeration. m. New York.
Il Cemento—Il Cemento. m. Milan.
Ind Advocate—Industrial Advocate. m. Halifax, N. S.
Ind Engng—Indian Engineering. w. Calcutta.
Indus Engng—Industrial Engineering. m. Pittsburg.
Industria—Industria. w. Milan.
Ingenieria—La Ingenieria. s.m. Buenos Aires, Argentina.
Ingenieur—De Ingenieur. w. Hague.
Ing Ferro—L’Ingegneria Ferroviaria. s.m. Rome.
Ins Engng—Insurance Engineering. m. New York.
Int Marine Engng—International Marine Engineering. m. New York.
REFERENCES LIST OF PERIODICALS.

Ir Age—Iron Age. *w.* New York.
Ir Trd Rev—Iron Trade Review. *w.* Cleveland.

Jour Roy Inst of Brit Arch—Journal of the Royal Institute of British Architects. *s.m.* London.
Jour Transvaal Inst of Mech Engrs—Journal of the Transvaal Institute of Mechanical Engineers. Johannesburg, S. A.
Jour W of Scot Ir & St Inst—Journal West of Scotland Iron and Steel Institute. *m.* Glasgow.

Locomotive—Locomotive. *m.* Hartford, Conn.

Marine Rev—Marine Review. *w.* Cleveland, O.
Mech Eng—Mechanical Engineer. *w.* Manchester, Eng.
Min Wld—Mining World. *w.* Chicago.
Mitt aus d Kgl Tech Versuchsanstalt—Mittheilungen aus der Königlich Technischen Versuchs-
anstalt. Berlin.
Mitt d Ver f d Förd d Local u Strassenbahnwesens—Mittheilungen des Vereines für die Förderung des Local und Strassenbahnwesens. *m.* Vienna.
Munfrs Rec—Manufacturers' Record. *w.* Baltimore.
Reference List of Periodicals.

Monit Indust—Moniteur Industriel. w. Paris.
Motorwagen—Der Motorwagen. s.m. Berlin.
Munic Engng—Municipal Engineering. m. Indianapolis, Ind.
Munic Jour & Eng—Municipal Journal and Engineer. m. New York.

Nat Geog Mag—National Geographic Magazine. m. Washington.
Naut Gas—Nautical Gazette. w. New York.
Nineteenth Cent—Nineteenth Century. m. London.
N Z Mines Rec—New Zealand Mines Record. m. Wellington.

Oest Wochenschr f d Oeff Baudienst—Österreichische Wochenschrift für den öffentlichen Baudienst. w. Vienna.

Plumb & Dec—Plumber and Decorator. m. London.
Power—Power and the Engineer. w. New York.
Prac Eng—Practical Engineer. w. London.
Pro Age—Progressive Age. s.m. New York.
Pro Am Inst Elec Engs—Proceedings American Institute of Electrical Engineers. m. New York.
Pro Am Inst Min Engs—Proceedings American Institute of Mining Engineers. m. New York.
Pro Am Soc Civ Engs—Proceedings of the American Society of Civil Engineers. m. New York.
Pro Can Soc Civ Engs—Proceedings of the Canadian Society of Civil Engineers. m. Montreal.
Pro Engrs Soc of West Penn—Proceedings of the Engineers Society of Western Pennsylvania. m. Pittsburgh, Pa.
Pro Iowa Ry Club—Proceedings of the Iowa Railway Club. m. Des Moines, Iowa.
Pro Pac Coast Ry Club—Proceedings Pacific Coast Railway Club. m. San Francisco, Cal.
Pro St Louis Ry Club—Proceedings St. Louis Railway Club. m. St. Louis, Mo.
Pro U S Naval Inst—Proceedings of the United States Naval Institute. q. Annapolis, Md.
REFERENCE LIST OF PERIODICALS.

Pro West Ry Club—Proceedings of the Western Railway Club. m. Chicago.

Qr Rev—Quarterly Review. q. London.
Quarry—Quarry. m. London.

Rev de Mécânique—Revue de Mécânique. m. Paris.
Rev de Métallurgie—Revue de Métallurgie. m. Paris.
Revist Tech Ind—Revista Tecnologico Industrial. m. Barcelona, Spain.
Rivista Gen d Ferroire—Rivista Generale di Ferroire. w. Florence.
Rivista Marittima—Rivista Marittima. m. Rome.
R R Age Gas—Railroad Age Gazette. w. New York.
Rudder—Rudder. m. New York.

Ry & Engng Rev—Railway and Engineering Review. w. Chicago.
Ry & Loc Engng—Railway and Locomotive Engineering. m. New York.
Ry Mas Mech—Railway Master Mechanic. m. Chicago.

Schiffbau—Schiffbau. s.m. Berlin.
Sch Mines Qur—School of Mines Quarterly. q. New York.
Schweiz Bau—Schweizerische Bauzeitung. w. Zürich.
Sib Jour Engng—Sibley Journal of Engineering. m. Ithaca, N. Y.
Sig Engr—Signal Engineer. m. Chicago.
Soc Belge d Elec’ns—Société Belge des Electriciens. m. Brussels.
Stahl u Eisen—Stahl und Eisen. w. Düsseldorf, Germany.
Stevens Ind—Stevens Institute Indicator. q. Hoboken, N. J.
Surveyor—Surveyor. w. London.

Tech—Technograph. yr. Urbana, Ill.
Tech Mod—La Technique Moderne. m. Paris.
Tram & Ry Wld—Tramway and Railway World. m. London.

Trans Assn of Civ Engrs of Cornell Univ—Transactions of the Association of Civil Engineers of Cornell University. Ithaca, N. Y.


Trans N-E Coast Inst of Engrs & Shldrs—Transactions of the Northeast Coast Institute of Engineers and Shipbuilders. m. Newcastle-on-Tyne.

U S Cons Repts—Consular Reports. m. Washington, D. C.
REFERENCE LIST OF PERIODICALS.

Wisconsin Engr—Wisconsin Engineer. b.m. Madison, Wis.
Wld's Work—World's Work. m. New York.
Wood Craft—Wood Craft. m. Cleveland, O.

Yacht—Le Yacht. w. Paris.
Yale Sci Month—Yale Scientific Monthly. m. New Haven, Conn.

Zeitschr d Mit Motorwagen Ver—Zeitschrift des Mitteleuropäischen Motorwagen Vereines. s.m. Berlin.
Zeitschr d Oest Ing u Arch Ver—Zeitschrift des Oesterreichischen Ingenieur- und Architekten Vereines. w. Vienna.
Zeitschr f d Gesamte Turbinenwesen—Zeitschrift für das Gesamte Turbinenwesen. w. Munich.
ORIGINAl ARTICLES SUPPLIED

We hold ourselves ready to supply—if not out of print—the full text of every article indexed in this volume, in the original language, together with all accompanying illustrations; and our charge in each case is regulated by the cost of a single copy of the journal in which the article is published. The price of each article is indicated by the letter following the number. When no letter appears, the price of the article is 20 cents. The letter A, B or C denotes a price of 40 cents; D, of 60 cents; E, of 80 cents; F, of $1.00; G, of $1.20; H, of $1.60. When the letter N is used it indicates that copies are not readily obtainable, and that particulars as to price will be supplied on application. Certain journals, however, make large extra charges for back numbers. In such cases we may have to increase proportionately the normal charge given in the INDEX. In ordering, care should be taken to give the number of the article desired, not the title alone.

To avoid the inconvenience of letter-writing and small remittances, especially from foreign countries, and to cheapen the cost of articles to those who order frequently, we sell coupons at the following prices:—20 cts. each, or book of twelve for $2.00, three books for $5.00.

Each coupon will be received by us in payment for any 20-cent article catalogued in the INDEX. For articles of a higher price, one of these coupons will be received for each 20 cents; thus, a 40-cent article will require two coupons; a 60-cent article, three coupons; and so on. The use of these coupons is strongly commended to those who use the INDEX regularly. They not only reduce the cost of articles 25 per cent (from 20 cts. to 15 cts.), but they need only a trial to demonstrate their very great convenience—especially to engineers in foreign countries, or away from libraries and technical club facilities.

Write for a sample coupon—free to any part of the world.
CLASSIFICATION OF THE INDEX

TO THE USER: This classification should always be consulted, and the page number of the proper division ascertained before looking for an individual item in the body of the book.

<table>
<thead>
<tr>
<th>Civil Engineering</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRIDGES</td>
<td>i</td>
</tr>
<tr>
<td>CONSTRUCTION</td>
<td>13</td>
</tr>
<tr>
<td>MATERIALS OF CONSTRUCTION</td>
<td>36</td>
</tr>
<tr>
<td>MEASUREMENT</td>
<td>42</td>
</tr>
<tr>
<td>MUNICIPAL</td>
<td>45</td>
</tr>
<tr>
<td>WATER SUPPLY</td>
<td>61</td>
</tr>
<tr>
<td>WATERWAYS AND HARBORS</td>
<td>79</td>
</tr>
<tr>
<td>MISCELLANY</td>
<td>94</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electrical Engineering</th>
<th>96</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMUNICATION</td>
<td>96</td>
</tr>
<tr>
<td>DISTRIBUTION</td>
<td>101</td>
</tr>
<tr>
<td>DYNAMOS AND MOTORS</td>
<td>103</td>
</tr>
<tr>
<td>ELECTRO-CHEMISTRY</td>
<td>111</td>
</tr>
<tr>
<td>ELECTRO-PHYSICS</td>
<td>116</td>
</tr>
<tr>
<td>GENERATING STATIONS</td>
<td>120</td>
</tr>
<tr>
<td>LIGHTING</td>
<td>134</td>
</tr>
<tr>
<td>MEASUREMENT</td>
<td>138</td>
</tr>
<tr>
<td>POWER APPLICATION</td>
<td>144</td>
</tr>
<tr>
<td>TRANSMISSION</td>
<td>146</td>
</tr>
<tr>
<td>MISCELLANY</td>
<td>156</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mechanical Engineering</th>
<th>197</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTOMOBILES</td>
<td>197</td>
</tr>
<tr>
<td>COMBUSTION MOTORS</td>
<td>212</td>
</tr>
<tr>
<td>HEATING AND COOLING</td>
<td>220</td>
</tr>
<tr>
<td>HYDRAULIC MACHINERY</td>
<td>228</td>
</tr>
<tr>
<td>MACHINE ELEMENTS AND DESIGN</td>
<td>234</td>
</tr>
<tr>
<td>MACHINE WORKS AND FOUNDRIES</td>
<td>241</td>
</tr>
<tr>
<td>MATERIALS OF CONSTRUCTION</td>
<td>267</td>
</tr>
<tr>
<td>MEASUREMENT</td>
<td>275</td>
</tr>
<tr>
<td>POWER AND TRANSMISSION</td>
<td>281</td>
</tr>
<tr>
<td>STEAM ENGINEERING</td>
<td>290</td>
</tr>
<tr>
<td>TRANSPORTING AND CONVEYING</td>
<td>314</td>
</tr>
<tr>
<td>MISCELLANY</td>
<td>320</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mining and Metallurgy</th>
<th>329</th>
</tr>
</thead>
<tbody>
<tr>
<td>COAL AND COKE</td>
<td>329</td>
</tr>
<tr>
<td>COPPER</td>
<td>344</td>
</tr>
<tr>
<td>GOLD AND SILVER</td>
<td>351</td>
</tr>
<tr>
<td>IRON AND STEEL</td>
<td>364</td>
</tr>
<tr>
<td>LEAD AND ZINC</td>
<td>378</td>
</tr>
<tr>
<td>MINOR MINERALS</td>
<td>380</td>
</tr>
<tr>
<td>MINING</td>
<td>390</td>
</tr>
<tr>
<td>ORE DRESSING AND CONCENTRATION</td>
<td>402</td>
</tr>
<tr>
<td>MISCELLANY</td>
<td>407</td>
</tr>
</tbody>
</table>

| Industrial Economy                    | 159|

| Marine and Naval Engineering         | 174|

<table>
<thead>
<tr>
<th>Railway Engineering</th>
<th>416</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONDUCTING TRANSPORTATION</td>
<td>416</td>
</tr>
<tr>
<td>MOTIVE POWER AND EQUIPMENT</td>
<td>420</td>
</tr>
<tr>
<td>NEW PROJECTS</td>
<td>438</td>
</tr>
<tr>
<td>PERMANENT WAY AND BUILDINGS</td>
<td>439</td>
</tr>
<tr>
<td>TRAFFIC</td>
<td>448</td>
</tr>
<tr>
<td>MISCELLANY</td>
<td>450</td>
</tr>
</tbody>
</table>

| Street and Electric Railways         | 457|

NOTE.—We hold ourselves ready to supply—if not out of print—the full text of every article indexed in this volume, in the original language, together with all accompanying illustrations. See preceding page.
THE ENGINEERING INDEX
1909

CIVIL ENGINEERING

BRIDGES ........................................... 1
CONSTRUCTION ....................................... 13
MATERIALS OF CONSTRUCTION ............... 36
MEASUREMENT ........................................ 42

MUNICIPAL .......................................... 45
WATER SUPPLY ...................................... 61
WATERWAYS AND HARBORS .................... 79
MISCELLANY ......................................... 94

Abutments

Method of Constructing Concrete Abutments on Concrete Cylinders for a Skew Bridge Across the North Shore Channel of the Sanitary District of Chicago. Illustrated description of methods used in constructing an unusual substructure. 1800 w. Engng-Con—June 16, 1909. No. 5615.

Archs.

Computation of Stresses in Open-Webbed Arches Without Hinges. C. W. Hudson. Gives a method for finding the stresses in every member of the arch due to a load at any point, or for any desired change in temperature. 1800 w. Pro Am Soc of Civ Engrs—Aug., 1909. No. 7363 E.


Experimental Verification of Arch Formulas. Malverd A. Howe. Describes experiments made to verify the results obtained by using the writer’s summation formulas for the fixed arch as applied to ribs of reinforced concrete. Ills. 2500 w. R R Age Gaz—March 26, 1909. No. 3516.

A New Arch Curve, the Parabolic Oval. Charles Worthington. Gives a description illustrating the derivation of the curve, and some examples of its application, with working equations. 2500 w. Eng News—April 15, 1909. No. 3979.


Bascule

Bridges


See also Concrete and Reinforced Concrete, under BRIDGES.

Bascule


Bascule Bridges Over the East Chicago Canal. Illustrates and describes bridges of the Rall patented type of bascule bridge, four of which are to be built for railways crossed. 2500 w. Eng News—March 18, 1909. No. 3244.

The New Knipples Bridge at Copenhagen. Illustrations and particulars of a new bridge of the bascule type showing the ornamental possibilities. 1200 w. Sci Am—May 29, 1909. No. 5093.


Blackwell's Island.


Reports on the Blackwell's Island Bridge. A statement of the conclusions of experts appointed to investigate this structure. Also editorial. 4200 w. Eng Rec—Nov. 7, 1908. No. 144.

The Cantilever Without Suspended Span. Appendices to the reports on this bridge. 2500 w. Eng Rec—Nov. 21, 1908. No. 417.

The Safety of the Blackwell's Island Bridge. Editorial discussion of the reports on the condition of this structure. 2000 w. Engng—Nov. 27, 1908. No. 867 A.


Further Reports Upon the Blackwell's Island (Queensboro) Bridge Over the East River. Reports concerning this structure, with editorial comment. 7000 w. Eng News—June 17, 1909. No. 5580.

The Strength of the Queensboro Bridge. Henry S. Prichard. Analysis of the various reports on the safety of the bridge. Also editorial. 9000 w. Ind Engng—July 15, 1909. No. 6678 C.

The Blackwell's Island Bridge. Editorial on a pamphlet issued by the Penn Steel Co. giving expert testimony in regard to its strength. 1800 w. R R Age Gaz—Sept. 10, 1909. No. 7694.


Cantilever.


See also Viaducts and Blackwell's Island, under BRIDGES.
CIVIL ENGINEERING

Concrete

Concrete.  
Concrete Bridge Specifications.  T. H. McDonald.  Read before the Iowa Assn. of Cement Users.  Discusses the requirements of such specifications.  1200 w. Cement Age—April, 1909.  No. 4079.

Concrete in Arched Bridge Construction.  E. P. Wells.  Lecture at the Concrete Institute on the construction of such bridges, with abstract of its discussion.  4000 w.  Builder—April 3, 1909.  No. 3887 B.

Concrete in Highway Bridge Abutments.  A. W. Campbell.  Presents its advantages and discusses the design, dimensions and permanence.  2500 w.  Con Rec—May 12, 1909.  No. 4676.


Short-Span Bridges in Philadelphia.  Concrete and steel railroad and highway bridges recently built in the suburbs are illustrated and described.  1500 w.  Eng Rec—March 13, 1909.  No 3112.


The Monroe St. Bridge, Spokane, Washington; A Concrete Bridge Containing a 281-ft. Arch.  Illustrated detailed description of a bridge soon to be constructed which will contain the longest concrete arch yet attempted.  1500 w.  Eng News—Sept. 2, 1909.  No. 7534.

An Elastic Arch Concrete Bridge.  Illustrated description of a reinforced-concrete arch treated as a perfectly elastic structure.  The bridge, which carries a highway over railroad tracks, is known as the Scenery Hill Viaduct.  1500 w.  Eng Rec—June 26, 1909.  No. 6602.

The Construction of the Edmondson Avenue Bridge, Baltimore.  Illustrated detailed description of methods used in constructing a bridge with three arch spans of 60 ft. and one of 139 ft.  3500 w.  Eng Rec—Aug. 14, 1909.  No. 7071.

BRIDGES


See also Abutments, Culverts, and Reinforced Concrete, under BRIDGES; and Grade Reduction, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS.

Culverts


Design


Drawbridges

The Temporary Bridge Across the Cornwall Canal and the Permanent Repairs to the Canal Break.  Describes a
Earthquakes

Swing Bridge Across the Weaver Navigation. Illustrated description of a structure chiefly noteworthy on account of the novel arrangement of the ball-bearing pivot on which it swings. 1200 w. Engr. Lond.—Oct. 8, 1909. No. 8930 A.

Weaver Drawbridge Lift-Rail Locking. Illustrated description of this apparatus. 1200 w. Sig Engr.—Nov., 1908. No. 260.


Earthquakes.


End-Launching.


Bridge Erection by the End-Launching Method (Lancage des Ponts au Moyen de Chalands). Ch. Dantin. Describes the work of erecting the Kyrönsalmi-Sund bridge in Finland and the French River bridge in Canada. Ills. 1600 w. Génie Civil—Dec. 5, 1908. No. 1925 D.

Erection.

Derrick Cars and Bridge Erection. J. H. Prior. A fully illustrated article describing the designs and features of such cars, their operation and uses. Also gives tests of iron pulley blocks, and general discussion. 10000 w. Jour W Soc of Engrs.—Aug., 1909. No. 7422 D.

Derrick Cars for Bridge Erection. Illustrated description of designs, described by J. H. Prior in a paper before the Western Society of Engineers. 2500 w. Eng Rec—March 6, 1909. No. 2973.

Handling Complete Bridge Spans. Illustrates and describes work on the Lehigh & New England in which the spans were assembled off the bridge, then brought into position over the old truss and hung from gallowes frames. The old truss was then removed and the new truss lowered into position. 1200 w. R R Age Gaz—March 12, 1909. No. 3097.


Erection Travelers.

Dismantling a Traveler. J. C. Worrell. Describes the unique manner in which a traveler at Clinton, Iowa, was dismantled. Ills. 700 w. Eng Rec—Aug. 7, 1909. No. 6949.

Failures.

The Collapse During Reconstruction of a Span of the Baltimore & Ohio R. R. Bridge Across the Susquehanna. An illustrated account of this accident, describing the construction, the collapse, and the condition of the wreckage. 2500 w. Eng News—Oct. 1, 1908. No. 214.

The Collapse of a Reinforced-Concrete Bridge Across the Illinois River at Peoria, Ill. Information concerning this bridge and the accident, received from various sources. Ills. 6000 w. Eng News—May 13, 1909. No. 4649.


Floors.


Foot Bridges.


Design of a Two-Span Foot Bridge (Berechnung eines Fussgangersteges von 2 Öffnungen). R. Necker. Mathemat-
Footwalks

See Blackwell's Island, under Bridges.

Foundations.


Junction Curves.

A Note on Some Junction Curves (Note sur diverses Courbes de Raccordement). M. Auric. Shows the solution of several problems which arose during the construction of a bridge over the Rhone. Ills. 5000 w. Ann des Ponts et Chaussés—1908 IV. No. 1300 E + F.

Lift Bridges.

Lift Bridges. An illustrated discussion of many types of movable bridges. 17500 w. Pro Engr's Soc of W Penn—Feb., 1909. No. 3454 D.

Electrically Operated Lift Bridge, the "New Bridge," at Cette (Le Pont Neuf, Pont-levant à Manœuvre Electrique au Port de Cette). M. Herrmann. Illustrated description of the construction and operating mechanism of this bridge, the middle span of which is lifted vertically to allow the passage of boats. 4300 w. Ann d Ponts et Chaussées—1908-III. No. 502 E + F.

See also Bascule, under Bridges.

Live Loads.


Maintenance.

See Design, under Bridges.

Manhattan.

The Queensboro and Manhattan Bridges Across the East River. Illustrated article dealing with the opening of the Queensboro bridge and work of completing the Manhattan bridge. 1200 w. Sci Am—April 10, 1909. No. 3839.

Progress on the Manhattan Bridge. Describes recent work on the cables, the machines used, special falsework, floor system, etc. Ills. 3000 w. Eng Rec—July 31, 1909. No. 6793.


The Construction of the Manhattan Bridge Approaches. Illustrated description. 1500 w. Eng Rec—Nov. 21, 1908. No. 414.


See also Suspension Cables, under Bridges.

Masonry.


CIVIL ENGINEERING

New York

The Arciat Bridge (Note sur le Pont d'Arciat). M. Parent. Illustrated description of a masonry bridge over the Saône, of seven 31-metre spans. 3300 w. Ann d Ponts et-Chaussées—1909-II. No. 5716 E + F.

New York


The Bridges of New York City. T. Kennard Thomson. In this second article the East River bridges and the smaller structures of Brooklyn, Queens, and Richmond are considered. IIs. 3000 w. Engineering Magazine—Oct., 1909. No. 8174 B.

See also Blackwell's Island and Manhattan, under BRIDGES.

Piers


See also Reconstruction, under BRIDGES.

Plate Girders


Pontoon


Quebec

Secondary Stresses in Large Epan Bridges. Editorial review of the report of C. C. Schneider to the Quebec Bridge Commission, discussing the cause of the failure and the best course to be pursued in replacing the structure. 2500 w. Engng—Jan. 29, 1909. No. 2361 A.

Reconstruction

Reconstruction of Approach Spans, Poughkeepsie Bridge. Describes reconstruction work made necessary by traffic requirements. 2200 w. Eng Rec—Oct. 9, 1909. No. 8436.


The Widening of Blackfriars Bridge. An illustrated review of the methods for completing the superstructure. 1200 w. Engng—March 5, 1909. No. 3164 A.


See also Piers, under BRIDGES.

Reinforced Concrete


The Concrete Arch vs. the Concrete Girder Bridge. Frank Barber. Compares two recent reinforced concrete bridges as to efficiency and cost. Ills. 1200 w. Can Engr—Nov. 20, 1908. No. 404.


Reinforced Concrete Bridges


Transverse Beams in Girder Bridges (Querträger bei Balkenbrücken). K. Oswald. Mathematical discussion of their design. IIs. 2500 w. Beton u Eisen—April 23, 1909. No. 5952 F.


Walnut Lane Bridge, Philadelphia. George S. Webster and Henry H. Quimby. Illustrated description of this bridge, notable for the great size of its main arch, discussing the principles of its design, the reasons for its special features, and the lessons learned in course of its construction. 13560 w. Pro Am Soc of Civ Engrs—Aug. 1909. No. 7364 E.


The Edmondson Avenue Bridge, Baltimore. A four-span concrete arch structure, carrying roadway and sidewalks, is illustrated and described. 1800 w. Eng Rec—June 19, 1909. No. 5623.

Method and Cost of Constructing a Reinforced Concrete Arch Street Bridge at Baltimore, Md. Relates to the construction of the Stony Run Bridge. 1700 w. Engng-Con—Aug. 4, 1909. No. 6898.

Contractors’ Plant on the Connecticut Avenue Bridge, Washington. An outline of the principal plant and operations and the complete location plan. The cost of the falsework was about $50,000. 2500 w. Eng Rec—April 3, 1909. No. 3705.


Reinforced Concrete Bridges

Concrete in the Galveston Causeway. H. Prime Kieffer. Illustrates and describes the construction of this causeway, which will join the island to the mainland, and especially the extensive use of concrete. 2500 w. Mfrs' Rec—July 15, 1909. No. 6318.


Some Reinforced Concrete Bridges in France. Illustrates and describes two railway and one foot bridge recently constructed, designed by M. A. Considère. 1500 w. Engr, Lond—Oct. 30, 1908. No. 197 A.

The Application of Spiral Hooping to a French Concrete Bridge. Illustrates and describes details of a bridge at Avranches, France. 700 w. Eng News—April 22, 1909. No. 4162.

The Pyrimont Bridge Over the Rhone (Pont en Beton armé sur le Rhone, à Pyrimont). G. Espitailier. Illustrated description of this concrete arch bridge on masonry piers. 3500 w. Genie Civil—Jan. 16, 1909. No. 2640 A.


See also Arches, Concrete, Culverts, Failures, Foundations, Steel, Trestles, Viaducts and Waterways, under Bridges; and Floods, under Waterways and Harbors.

Removal.


Replacement.

Replacing a Double-Track Skew Bridge and Viaduct. Plans and description of methods of replacing the entire superstructure without obstructing the track below or interrupting train service. 2000 w. Eng Rec—May 8, 1909. No. 4577.

Erection of Delaware River Bridge at Portland, Pennsylvania. Illustrated description of methods used in replacing an entire steel superstructure, on the old substructure, without interrupting traffic on a single-track bridge. 4000 w. Eng Rec—April, 1909. No. 3709.

Replacing a Lehigh Valley Railroad Bridge. Illustrated account of bridge 444 A on the Buffalo Division which was erected without interruption of traffic of any of the other roadways concerned. 1000 w. Eng Rec—Oct. 16, 1909. No. 8593.

Roller Bearings.

Provision for Expansion in Bridges (Notes sur les Appareils de Dilatation des Ponts). A. Nachtergal. Discusses the theoretical considerations in providing for expansion, and the types of bearings used. Ills. 2800 w. All Indus—March, 1909. No. 4228 D.

Skew.

See Replacement, under Bridges.
Skew Portals


Steel


Concerning High Unit-Stresses in Steel Bridge Design. Editorial on the tendency toward using higher unit-stresses, considering that there is no valid reason for the change. Also discusses the causes. 3000 w. Eng News—Nov. 19, 1908. No. 380.


The Erection of Girder Bridges. Frank W. Skinner. An illustrated article, the present number considering the handling girder at the shop, loading on cars, handling at bridge site, and examples of erection with derricks. 4500 w. Eng Rec—April 10, 1909. Serial, 1st part. No. 3863.


Parabolic Bridges (Ponts paraboliques). A. Nachtgeral. A mathematical and graphical demonstration of the method of determining length of members. Ills. 3000 w. All Indus—Feb., 1909. No. 3320 D.

Light and Heavy Bridges (Ponts lourds et Ponts légers). M. Pendaries. Describes two types of light, strong and cheap bridges, of steel girders, reinforced with concrete. Ills. 10000 w. Ann d Ponts et Chaussées—1908-VI. No. 3314 E + F.


The Protection of Steel Bridges (Sulla Conservazione die Ponti in Ferro). Discusses the problems of corrosion and protective coatings. Serial, 1st part. 3000 w. Ing Ferro—Nov. 1, 1908. No. 1138 D.


Some Features of the Bridges on the Harlem River Branch of the New York, New Haven and Hartford Railroad. Herbert C. Keith. Plans and description of bridges on a branch carrying a heavy freight business, and carrying the railway over many streets. Discussion. 9500 w. Pro Brooklyn Engrs' Club, No. 84—1908. No. 5873 E + F.

A Protected Steel and Concrete Highway Bridge. Illustrates and describes a bridge carrying Tremont Ave. over a number of tracks of the N. Y., N. H. & H. R. R. and is of interest on account
CIVIL ENGINEERING

Steel Bridges


The McKeesport & Port Vue Bridge. Illustrated detailed description of this highway bridge across the Youghiogheny River. It has a steel superstructure and concrete floor. 1200 w. Eng Rec—Nov. 28, 1908. No. 692.


The Fort Snelling Bridge. Illustrated detailed description of the design and construction of this highway bridge across the Mississippi river. 1700 w. Eng Rec—June 26, 1909. No. 5999.


Steel BRIDGES Suspension Cables

The Long Span Riveted Truss French River Bridge. Illustrated detailed description. The most interesting feature is the special construction of the main end bearings. 1500 w. Eng Rec—Aug. 28, 1909. No. 7387.


The King Edward VII Bridge, Newcastle on Tyne. Frank William Davis and Cyril Reginald Sutton Kirkpatrick. Describes the foundations, approaches, superstructure and its erection, cableways, etc. Ills. Discussion. 27000 w. Inst of Civ Engrs—No. 3742. No. 3210 N.


Some Railway Bridges on the West Coast of Tasmania. James. Bannatyne Lewis. Illustrates and describes the erection of bridges with limited resources. 3000 w. Inst of Civ Engrs—No. 3710. No. 888 N.

Sydney Harbor Bridge. Describes a scheme which is to cost about £2,000,000. 1200 w. Engr, Lond—Nov. 6, 1908. No. 328 A.


The Doumer 1680-Metre Bridge Over the River Rouge at Hanoi, Tonkin (Le Pont Doumer de 1680 Mètres d’Ouverture sur le Fleuve Rouge à Hanoi, Tonkin). Illustrated detailed description. 4000 w. Génie Civil—April 3, 1909. No. 4834 D.

The Song-Ma Railway Bridge (Pont de Chemin de Fer sur le Song-Ma, Tonkin). Ch. Dantin. Illustrates and describes the construction of a bridge of novel design. 3000 w. Génie Civil—May 8, 1909. No. 5739 D.


See also Arches, Bascule, Blackwell’s Island, Concrete, Drawbridges, Erection, Failures, Floors, Foot Bridges, Junction Curves, Manhattan, Plate Girder, Pontoon, Reinforced Concrete, Replacement, Roller Bearings, Suspension, and Viaducts, under BRIDGES.

Suspension.


The Trelins Suspension Bridge (Notice sur la Construction du Pont suspendu de Trelins près Vinay). M. Buison. Describes a bridge of the “semi-rigid” type. Ills. 3600 w. Ann d Ponts et Chausées—1908-VI. No. 3315 E + F.

Suspension Cables.

Swing Bridges


See also Drawbridges, under BRIDGES.

Timber.


Transporter.

See Transporter Bridges, under MECHANICAL ENGINEERING, TRANSPORTING AND CONVEYING.

Trestles.

Ferro-Concrete Coal Tip and Viaduct at Sharpness Docks. Reviews the history of these docks, illustrating and describing recent improvements. 1500 w. Engr, Lond.—Jan. 15, 1909. No. 2084A.


Viaducts.


The Greenville Bridge of the Boston & Maine Railroad. Illustrates and describes the erection of a steel viaduct over 611 ft. long, carrying a single track nearly 100 ft. above the Sonhegan River. 2000 w. Eng Rec—Feb. 27, 1909. No. 2850.


Erection of the Arches of the Mulberry Street Viaduct, Harrisburg. Illustrates and describes the construction of the arches and roadway system of this reinforced concrete structure. 3800 w. Eng Rec—April 3, 1909. No. 3690.


A Reinforced-Concrete Viaduct With Some Structural Steel Reinforcement, Takoma Park, Md. Illustrated description of a structure in which I-beams are employed as the basis of the reinforced-concrete beams and struts wherever possible. 1000 w. Eng News—July 1, 1909. No. 6084.

The Cuyahoga Viaduct of the New York, Chicago & St. Louis Railroad. A double track steel bridge of Cleveland, O., having a length of about 3,010½ ft. crossing a river, several streets and a number of tracks. 2000 w. Eng Rec—Jan. 9, 1909. No. 1574.


Early Construction Methods on the Grand Avenue Viaduct. The erection of this viaduct in Milwaukee, Wis., is illustrated and described. 2500 w. Eng Rec—May 22, 1909. No. 4925.


The Sixth Street Viaduct, Kansas City. E. E. Howard. Illustrated detailed description of a steel structure, about 8000 ft. long, carrying elevated roadway and
two car tracks across the valley of the Kaw River. 17500 w. Pro Am Soc of Civ Engrs—Feb., 1909. No. 3459 E.


The Fades Viaduct Over the Sioule (Achêvement du Viaduc des Fades sur la Sioule). Describes a long, high, steel viaduct on the Puy-de-Dôme railway. Ills. 3000 w. Génie Civil—May 29, 1909. No. 5742 D.


The Makatote Viaduct. Illustrated description of this steel viaduct on the North Island Main Trunk Ry. of New Zealand. Plate. 1800 w. Engng—Sept. 3, 1909. No. 7747 A.

See also Elevated Railways, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS.

Waterways.


CONSTRUCTION

Beams.


Lateral Strength of Beams. H. D. Hess. A discussion applicable only to present standard structural shapes. 900 w. Pro Engrs’ Club of Phila—April, 1909. No. 7114 D.

A Note on the Deflection Due to Shear. W. C. Popplewell. Gives a method of determining the deflection due to shear as separate from that due to direct stresses. 1800 w. Engr, Lond—Sept. 24, 1909. No. 8367 A.

The Calculation of Elastic Fixed and Continuous Beams with Variable Moment of Inertia (Ueber die Berechnung elastisch eingespannter und kontinuierlicher Balken mit veränderlichem Trägheitsmoment). Max Ritter. Mathemati-
CIVIL ENGINEERING

Brick

Experiments to Determine Pressure of Concrete on Forms. Francis R. Spunk. Abstract from "Prof. Mem." Engrs' Bureau, U. S. A. An account of experiments made at Lock No. 1, on the Mississippi River between St. Paul and Minneapolis, to determine the pressure of concrete on forms at various temperatures and rates of setting. Ills. 1400 w. Engng-Con—Aug. 25, 1909. No. 7342.

The Supervision of Brickwork. Suggestions for inspection, selection of bricks, the mortar, and features of the work. 2500 w. Builder—Aug. 28, 1909. No. 7672 A.


Reinforcement for Ordinary Walls (Impiego della Lamiera stirata per Armare la Muratura ordinaria). A. Anastasi. Describes a type of reinforcement applicable to brick and masonry walls, for use in earthquake countries. Ills. 1000 w. Ann d Soc d Ing e d Arch Ital—July 1, 1909. No. 7238 F.

The Edison Concrete House. Illustrates and describes this invention for providing comfortable and sanitary homes for workmen at moderate cost. 1200 w. Sci Am—Aug. 28, 1909. No. 7379.


See also Concrete Blocks, Retaining Walls, and Stacks, under CONSTRUCTION; and Sewers, under MUNICIPAL.

Building Costs.


Building Raising.


Caissons.


Cement Brick.


Chalmette Monument.

Work of Completing Chalmette Monument. An illustrated account of the work of completing an abandoned monument erected to the honor of Andrew Jackson, and those who lost their lives in the great battle. 3000 w. Jour Assn of Engn Socs—Sept., 1909. No. 8767 C.

Coal Bunkers.

Reconstructing Coal Bunkers in a Steam Power Plant. Explains the difficulties of work carried out in New York City in reconstructing coal bunkers destroyed by fire. 3200 w. Eng Rec—Nov. 14, 1908. No. 250.

Coal Pockets.

A Large Steel Coal Storage Building. Illustration and brief description of storage shed and conveyor at Wende, N. Y. 1000 w. Eng Rec—Sept. 4, 1909. No. 7555.

Ferro-Concrete Coal Storage Plant. Illustrated description of coal silos and their mechanical equipment as installed at the Clayton West and Skelmanthorpe Collieries. 1000 w. Col. Guard—Jan. 22, 1909. No. 2216 A.

Elevated Reinforced Concrete Coal Store. Illustrated description of a structure recently erected in Montreal. 1200 w. Engr, Lond—June 11, 1909. No. 5637 A.

See also Coaling Plants, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS.

Columns.

The Strength of Compression Members. Edward Godfrey. Aims to show that the strength of a column considered as a spring is independent of the elastic strength of the material. Also that the Gordon-Rankine formula leads sometimes to dangerous conclusions. 3000 w. R R Age Gaz—July 2, 1909. No. 6128.

The Theory of Eccentrically-Loaded Columns, Including the Influence of Shear Distortion. Harry S. Prichard. Gives problems and results of special cases showing the influence of shear on deflection and illustrating the theory of eccen-
Columns

Concrete

CIVIL ENGINEERING


Cost of Concrete Work in the U. S. Reclamation Service. Henry A. Young. Refers to work on tunnel No. 3 of the Huntley Project, Montana. 1200 w. Cornell Civ Engr—March, 1909. No. 3199 C.

The Bonding of New to Old Concrete. E. P. Goodrich. Reviews the experimental work in this field, and gives an account of investigations made by the author. Ills. 8500 w. Pro Am Soc of Civ Engrs—Jan., 1909. No. 2123 E.


The Wet and Dry Mixtures of Concrete. M. H. Landis. Things to be considered in the manufacture of concrete building blocks, and other concrete construction. 1200 w. Cement—Aug., 1909. No. 7570 C.

A Concrete Mixing and Handling Plant for Constructing a Dam, With Some Details of Cofferdam Work. Illustrates and describes the plant used in constructing a dam across the Connecticut River, at Bellows Falls, Vt. 1200 w. Engng-Con—June 23, 1909. No. 6018.


See also Concrete, and Reinforced Concrete, under MATERIALS OF CONSTRUCTION.


Hints for Inspectors of Concrete Work. The first of a series of articles discussing the more important duties of inspectors. 1800 w. Engng-Con—March 31, 1909. Serial, 1st part. No. 3680.


Cost of Concrete Work in the U. S. Reclamation Service. Henry A. Young. Refers to work on tunnel No. 3 of the Huntley Project, Montana. 1200 w. Cornell Civ Engr—March, 1909. No. 3199 C.

The Bonding of New to Old Concrete. E. P. Goodrich. Reviews the experimental work in this field, and gives an account of investigations made by the author. Ills. 8500 w. Pro Am Soc of Civ Engrs—Jan., 1909. No. 2123 E.


The Wet and Dry Mixtures of Concrete. M. H. Landis. Things to be considered in the manufacture of concrete building blocks, and other concrete construction. 1200 w. Cement—Aug., 1909. No. 7570 C.

A Concrete Mixing and Handling Plant for Constructing a Dam, With Some Details of Cofferdam Work. Illustrates and describes the plant used in constructing a dam across the Connecticut River, at Bellows Falls, Vt. 1200 w. Engng-Con—June 23, 1909. No. 6018.


See also Concrete, and Reinforced Concrete, under MATERIALS OF CONSTRUCTION.


Hints for Inspectors of Concrete Work. The first of a series of articles discussing the more important duties of inspectors. 1800 w. Engng-Con—March 31, 1909. Serial, 1st part. No. 3680.


The Relation of Temperature to the Removal of Concrete Forms. Editorial on
Concrete

Recent Examples of Concrete Construction. J. F. Springer. Illustrates and describes recent work, showing the progress in the use of plain and reinforced-concrete. 3500 w. Cassiers' Mag—July, 1909. No. 6349 B.


Artistic and Commercially Practical Surface Finishes for Concrete Work. J. H. Chubb. Illustrated article showing what can be accomplished in the way of producing pleasing surface finishes for concrete work. 2200 w. Eng Rec—April 3, 1909. No. 3708.

Casting the Concrete Lions for Connecticut Ave. Bridge, Washington, D. C. Gives a view of one of the finished lions, and describes the methods used in casting. 1500 w. Eng News—Nov. 19, 1908. No. 374.

Concrete Construction for Gun Battery. Illustrated detailed description of work. 2500 w. Cement—March, 1909. No. 3925 C.


See also Contractor's Plants, Contracts, Fence Posts, Foundations, Regulation, and Tunnels, under Construction: Pavements and Sidewalks, under Municipal; Wharves, under WATERWAYS AND HARBORS; Conduits, under ELECTRICAL ENGINEERING, TRANSMISSION; and Shafts, under MINING AND METALLURGY, MINING.

Concrete Blocks.


The “Eternit” Artificial Stone (La Pietra “Eternit”). Their constituents, making and use are described. Ills. 3500 w. II Cemento—Nov., 1908. No. 1936 D.

See also Fireproof, and Stacks, under CONSTRUCTION; and Sewers, under MUNICIPAL.

Concrete Tiles.

The Pauly Concrete Hollow Tile. Information concerning the manufacture and use of this material. Ills. 900 w. Cement Age—Feb., 1909. No. 2729.

Contractor's Plants.

The Contractor's Plant for Building a Triple Barrel Reinforced Concrete Sewer. Illustrates and describes the plant for building a reinforced concrete sewer on pile foundations, mostly over a marsh, in the Bronx, New York City. 2800 w. Eng Rec—Nov. 28, 1908. No. 700.

Construction Plant Employed on the New York Water Supply. H. Prime Kieffer. Illustrates and describes the extensive and costly plant installed to secure the highest quality and greatest possible rapidity of the work. 1500 w. Mun Engng—Aug., 1909. No. 7028 C.


The Construction Plant for the Gatun Locks of the Panama Canal. Illustrates and describes the more important details and general layout of the plant for the handling of stone, sand and cement, the mixing and placing of the concrete, and the main power station. 3500 w. Eng Rec—July 17, 1909. No. 6396.

Construction Plants for the Pacific Locks of the Panama Canal. Illustrated description of the material handling plant at the Miraflores locks and the Pedro Miguel lock. 3000 w. Eng Rec—Sept. 25, 1909. No. 8663.

See also Reinforced Concrete, under BRIDGES; Sewers, under MUNICIPAL; and Dams, under WATER SUPPLY.
CIVIL ENGINEERING

Contracts


Cost Estimating.


Cost-Keepering.


The Cost-Keepering System of the United States Reclamation Service. Describes methods of giving a uniform system so that projects can be compared where conditions are similar, especially adapted to government work. 3500 w. Eng Rec—July 10, 1909. No. 6258.


CONSTRUCTION

Domes.


Earth Filling.


Earthquakes


The Employment of Reinforced Concrete in Localities Subject to Earthquakes (Pensieri sull’ Impiego del Cemento armato in Località soggette a terremoti). C. Cavaggia. A general discussion of the applicability of this material to structures in earthquake countries. 3200 w. Ann d Soc d Ing e d Arch Ital—March 15, 1909. No. 4242 F.


Earthquakes

Construction for Regions Subject to Earthquake Shocks (Norme edilizie per e Paesi soggetti a Terremoti). A. Pacchioni, G. C. Baravelli and others. An exhaustive discussion of the subject. 37500 w. Ann d Soc d Ing e d Arch Ital—April 1 and 15, 1909. No. 4844, each F.


Earthquake Construction (Edilizia antisismica). Editorial discussion of various theories and suggestions. IIs. 3500 w. Il Cemento—May 15, 1909. No. 5745 D.


Regulations of the Italian Government for the Construction and Repair of Buildings in Earthquake Districts. The text of the decree of April 18, 1909. IIs. 18000 w. Ing Ferro—May 8, 1909. No. 5746 D.

Construction in Countries Subject to Earthquake Shocks (La Construction dans les Pays sujets aux Tremblements de Terre). E. Lemaire. The report of the Italian commission appointed to consider the best type of construction is reviewed. IIs. 4800 w. Génie Civil—July 17, 1909. No. 7232 D.

Building Regulations for the Italian Earthquake Regions (Norme Edilizie per le Regioni Italiane Colpite da Terremoti del 28 Dicembre 1908 od Anteriore). Editorial discussion of the report of the commission appointed to study this problem. 6000 w. Il Cemento—July 15, 1909. No. 7243 D.

Report of the Sub-Commission Appointed to Visit the Earthquake District in Calabria and Sicily (Relazione della Sottocommissione Incaricata di Visitare le Località Colpite dal Terremoto Calabro-Siculo del 1908). Text of the report presented to the Italian Government. IIs. 3500 w. Ing Ferro—July 1, 1909. No. 7245 D.


For Calabria and Sicily (Pro Calabria e Sicilia). Vittoria Gianfranceschi and Giulio Revere. Second prize paper in a recent competition on earthquake construction in Italy. IIs. 2500 w. Monit Tech—Aug. 20, 1909. No. 7944 D.

Report of the Jury in the Competition on Earthquake Construction Recently Held in Italy (Relazione della Giuria del Concorso per Costruzioni edilizie nelle Regioni Italiane soggette a Movimenti sismici). Serial. 1st part. 4000 w. Monit Tech—Sept. 20, 1909. No. 8638 D.

See also same title under BRIDGES, and MISCELLANY.

Earthwork.

Earthworks. On the importance of earthworks and their proper treatment, especially in railway construction; the angle of slope, material, etc. 1500 w. Engr, Lond—March 12, 1909. No. 3427 A.


See also same title, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS.

Excavation.


Hammer Drills Applied to Rock Excavation in Sewer Construction at Bloomington, Ind. George L. Thon. An illus-
Excavation


Handling the Excavation and Concrete Materials for a Large Steel-Cage Building used in the most congested district of Chicago. 2800 w. Eng Rec—Nov. 28, 1908. No. 693.


Plowing as a Means of Classifying Excavation. Gives the opinion of the Indiana Supreme Court on this subject as rendered in a recent case. 4000 w. Eng Rec—April 10, 1909. No. 3860.

See also Barge Canal, and Rock Removal, under WATERWAYS AND HARBORS; Air Compressors, under MECHANICAL ENGINEERING, POWER AND TRANSMISSION; and Drills, under MINING AND METALLURGY, MINING.

Excavators.


Factories.


Reinforced Concrete Industrial Buildings. J. P. H. Perry. Discusses questions in regard to the use of this material for manufacturing plants. 3500 w. Cement—May, 1909. No. 5557 C.


Reinforced Concrete for Factory Construction. J. P. H. Perry. Address before the Machine Tool Builders’ Association, showing the value of this material for such plants. Ills. 4000 w. Ir Age—Oct. 21, 1909. No. 8779.

A New Building for the Western Electric Company. Illustrated description of a fireproof factory building in Chicago, having 500,000 sq ft of available floor space, to be used for the manufacture of telephone apparatus. 2500 w. Eng Rec—Feb. 27, 1909. No. 2853.

Failures.


See also Tanks, under WATER SUPPLY.

Fence Posts.


Fences.

See Retaining Walls, under CONSTRUCTION.

Fertilizer Plants.

Fertilizer and Acid Plants. F. E. Mac Knight. A brief résumé of the history and statistics of this industry, discussing the constructional features of the plants with special reference to the fire hazards. Ills. 3500 w. Ins Engng—March, 1909. Serial, 1st part. No. 3499 C.

Fireproof.

Modern Fireproof Construction. Facts and Figures. W. N. Moorhouse. Discussion and comparison of types of construction for warehouses or factory build-
Fireproof Construction

Concrete, under Materials of Construction; and Clay-Products Testing, under Measurement.

Floors.


See also Failures, under Construction; and Concrete, under Materials of Construction.

Foundations.


Machinery Foundations. Hints on foundations for machinery, and for structures such as bins, bunkers, hoppers, etc. 2000 w. Mech Wid—Jan. 22, 1909. No. 2214 A.


The Design of Continuous Foundations in Reinforced Concrete (Contributo al Calcolo delle Fondazioni continue in Cemento armato). A. Danusso. Mathemat-
CIVIL ENGINEERING

Foundations


Foundation for the Building for the U. S. Naval Experiment Station at Annapolis, Md. Harrison W. Latta. Describes the conditions and the methods used in constructing pile foundations and fill. 3000 w. Pro Engrs' Club of Phila—Jan., 1909. No. 6360 D.

Renewing Foundation of a Water Tank. William Martin. Describes work at Pittsburgh where a timber foundation was replaced by concrete. Discussion. 4000 w. Pro Engrs' Soc of W Penn—Oct. 1908. No. 349 D.


Foundations for the New Courthouse in Düsseldorf (Künstliche Fundierung des Geschäftsgebäudes für das Oberländesgericht zu Düsseldorf). Franz Boerner. The first part deals with the examination of the ground. The foundation was of reinforced-concrete. Serial. 1st part. 2700 w. Beton u Eisen—Oct. 26, 1908. No. 573 F.

The Settlement of the Magistrates' Courts, Georgetown, British Guiana. Leonard Percival Hodge. Describes a case where a building was allowed to settle under constant observation. Ills. 1200 w. Inst of Civ Engrs—No. 3735. No. 2793 N.

See also Excavation, Earthquake, Piling, and Underpinning, under Construction.

Frame Buildings

CIVIL ENGINEERING

Framed Structures


Gas Holders


See also Foundations, under Construction.

Grain Elevators


A Large Reinforced-Concrete Grain Warehouse in Duluth. Illustrates and describes a warehouse of the circular-bin type being built for the Great Northern Ry. Co., at Superior, Wis. 2500 w. Eng Rec—Aug. 28, 1909. No. 7384.


Graphical Statics

The Deflection Polygon of a Framed Structure as a Funicular Polygon. Myron S. Falk. Mathematical. 800 w. Sch of Mines Qr—Nov., 1908. No. 973 D.

Grouting


High Buildings

The Skyscraper and the Street. David Knickerbacker Boyd. Discusses the present phases of the question and proposes a scheme for correcting most of the difficulties. IIs. 3000 w. Am Archt—Nov. 18, 1908. No. 358.


High Work

Methods of Executing Light Work at Great Heights. Describes methods used in painting a cornice on a 14-story hotel in Philadelphia; of repairing tall stacks, etc. IIs. 3000 w. Eng Rec—Oct. 23, 1909. No. 8704.

Hydraulic Filling


See also same title, under WATER SUPPLY.

Masonry


See also same title, under BRIDGES; and DAMS, under WATER SUPPLY.

Piles


See also Stations, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS.

Piling

Discussion of Various Piles and Methods of Driving Them. Frederic W.
Piling

Swain. An illustrated discussion of modern and various types of concrete piles. 2500 w. Harvard Engng Jour—June, 1909. No. 5991 D.


The Development and Use of Steel Sheet Piling, with Some Data on the Preservation of Steel Buried in the Ground. J. R. Wimlinger. Read before the Technical League, N. Y. City. 4000 w. Engng-Con—May 19, 1909. No. 4797.


The Wimlinger Steel Sheet Piling. An illustrated article giving information in regard to this piling and its use. 2500 w. Ir Age—Sept. 9, 1909. No. 7607.

Concrete Piles. Howard J. Cole. Presents the advantages of the various types, describing the methods of driving and giving data of bearing power, cost, etc. Ills. 8500 w. Pro Am Soc of Civ Engrs—May 1, 1909. No. 5105 E.


Large Concrete Piles, William F. Johnston. Illustrated description of piles built in the ground, used in Europe. 1500 w. Eng Rec—Sept. 25, 1909. No. 8071.

Straight or Tapered Concrete Piles? Clarence S. Howell. Describes methods of manufacture, and gives a comparison between straight and tapered piles as to load capacity. 1600 w. Eng News—Feb. 25, 1909. No. 2761.


Built-Up Concrete Slab Piles and Pile Protection. Illustrates and describes a form of pile used in England, which allows renewals to be made without interfering with the use of the structure. 3000 w. Eng Rec—May 8, 1909. No. 4573.


See also Foundations, under Bridges; and Coffer Dams, and Dikes, under Waterways and Harbors.
CIVIL ENGINEERING

Plates


Reclamation


The Reclamation of Wet Lands in Louisiana. Information relating to the improvement of land by levees and drainage, the methods used, etc. Ills. 2000 w. Eng Rec—Oct. 9, 1909. No. 8437.

Reclamation of the Florida Everglades. J. H. Reese. An account of the work already done, the plan of drainage, the cost, and the good to result from the reclamation. 3000 w. Mfrs' Rec—Oct. 7, 1909. No. 8385.

Building a City at Long Beach, Long Island. Illustrates and describes the work of constructing 2000 acres of salt marsh, tidal channels and sand dunes into a fine residence city. 3000 w. Eng Rec—Nov. 21, 1908. No. 415.


The Drainage and Reclamation of the Zuider Zee (Het Wetsontwerp voor den Aanleg van een Gedeelte van de Afsluiting der Zuiderzee en indijking en droogmaking van de Wieringermeer). Dr. J. Kraus. A comprehensive general review of the project. 7800 w. De Ingenieur—Feb. 20, 1909. No. 3575 D.

See also Coast Protection, under Waterways and Harbors.

Reinforced Concrete


See also Filing Systems, under INDUSTRIAL ECONOMY.

Regulations

Regulations for the Planning, Execution and Testing of Concrete Structures. Gives the regulations adopted for Germany. 1500 w. Cement—March, 1900. No. 3923 C.


Draft of Regulations for Concrete Construction (Concept-Betonizer-voorschriften). The text of the regulations proposed by the Dutch Institute of Engineers. 4500 w. De Ingenieur—March 20, 1909. No. 4375 D.

Some Practical Ideas on Reinforced Concrete Design. Ernest McCullough. A talk before the Civ. Engng. Soc. of Armour Inst. on some things not mentioned in current treatise, such as deflection, factor of safety, etc. 5400 w. Engng-Conn—April 14, 1909. No. 3973.

Reinforced Concrete


The Use of Ferro-Concrete in Monumental Architecture. Translated from a lecture given the Austrian Society of Engineers and Architects by Alexander Edler von Monteforte. Ills. 2500 w. Archt, Lond—Sept., 17, 1909. Serial, 1st part. No. 8102 A.


Unit Costs of Reinforced Concrete Building Construction. T. Herbert Files. Deals with labor costs only. 1200 w. Engng-Con—April 7, 1909. No. 3870.


The Graphic Statics of Reinforced Concrete Sections. William Dunn. The treatment is based on Mohr's methods. Descriptive, with diagrams. 3500 w. Engng—Dec. 25, 1908. No. 1536 A.


Diagrams for Reinforced Concrete Beams. H. O. Schermerhorn. Inset plate of diagrams, with explanation and review of the principles of design as far as is necessary to show the deduction of the equations. Illustrates their use. 2500 w. Eng Rec—March 6, 1909. No. 2974.


Formulas for the Strength of Reinforced-Concrete Beams. Percy John
CIVIL ENGINEERING

Reinforced Concrete

CONSTRUCTION

Reinforced Concrete

Robinson. A discussion of formulae, developed on rational lines, by which the strength may be calculated. 3500 w. Inst of Civ Engrs—No. 3773. No. 2794 N


The Joining of Tension Reinforcement in Concrete Beams (Expériences sur les Jonctions de Barres tendues dans les Foutres de Béton armé). M. Mesnager. Results of extensive tests on overlapping and joining bars for reinforcement. Ills. 11000 w. Ann d Ing et Chausse 1908 II. No. 2607 E + F.


Stresses and Strains in Reinforced-Concrete Subjected to Simple or Compound Bending (Tensioni e Deformazioni reali nelle Strutture di Cemento armato soggette a Flessione semplice o composta). C. Parvopassu. Mathematical. Ills. Serial, 1st part. 4000 w. Ann d Ing et d Arch Ital—June 1, 1909. No. 6552 E.


Test Loading of a Pohlmann Roof to Determine the Accuracy of Certain Formulas for the Deflection of Reinforced Concrete Beams (Die Probibelastung einiger Bulbeisendecke, System Regierungsbaumeister Pohlmann, nebst Untersuchung des Genauigkeitsgrades einiger für die Durchbiegung von Eisenbeton balken angegebenen Formeln). Ills. 4000 w. Beton u Eisen—Sept. 24, 1909. No. 8698 F.


The Employment of Reinforced Concrete Beams according to the Regulations of the Italian Government (Il Calcolo delle
Reinforced Concrete

CONSTRUCTION


Bending Moments in Continuous Reinforced Concrete Beam. A discussion by O. Gotschaer, in Beton u. Eisen, of the bending moments in a continuous beam over 3 supports, especially at the mid-support. 1000 w. Cement—Nov., 1908. No. 899 C.


The Advantages of Reinforced Concrete for Railway Construction. B. H. Davis. Considers the familiar uses of this material in railway construction, pointing out the advantages and disadvantages, and comparing costs with other materials. Ills. 4500 w. Cement—Jan., 1909. No. 2725 C.


A Reinforced Concrete Interlocking Tower. Illustrates and describes a tower, designed for a 48 lever machine. 1000 w. Sig Engr—March, 1909. No. 3238.

Construction and Reconstruction. J. P. H. Perry. Illustrates and describes the model factories of the Bush Terminal Co., built of reinforced concrete on an improved ground; and also the reconstruction of the King plaster mill in the same material, while in operation. 2200 w. Ins Engng—May, 1909. No. 4990 C.

Reinforced Concrete House Built by an Entirely New Method. Describes a house built of steel tubing, wire, malleable fittings and concrete which shows radical departures from previous methods of fireproof construction. Ills. 1200 w. Ind Wd—June 7, 1909. No. 5386.


Reinforced Concrete Construction in the Hartford Armory. States the requirements and conditions and describes the construction. Ills. 3000 w. Eng Rec—Jan. 9, 1909. No. 1575.


Reinforced Concrete

The Loeser Warehouse. Illustrated description of a reinforced concrete structure in Brooklyn, N. Y., protected with applied apparatus for detecting and extinguishing fires. 1000 w. Ins Engng—Sept., 1909. No. 8490 C.

Arch for Supporting a Floor of the Christopher Warehouse, Jacksonville, Fla. Illustrates and describes a reinforced-concrete warehouse in which a portion of the flooring and roof are carried by arches having a clear span of 54 feet. 1500 w. Eng Rec—Jan. 16, 1909. No. 1768.


Reinforced Concrete Stock Pen Construction for the Union Stock Yards & Transit Co., Chicago, Ill. The present article gives details of the new platform and pen construction. IIs. 1500 w. Engng Con—Feb. 17, 1909. No. 2537.


A Reinforced Concrete Church in Los Angeles, Cal. Illustrates and describes the methods of construction, especially the reinforcement of the dome and supporting columns. 1000 w. Eng Rec—March 20, 1909. No. 3267.

Reinforced Concrete Dome of the Porto Rico Capitol. Illustrated detailed description of this feature of the new capitol. 1500 w. Eng Rec—May 1, 1909. No. 4393.

Group of Reinforced-Concrete Build-
Reinforced Concrete

CONSTRUCTION

Retaining Walls

Towers and Weirs, under WATER SUPPLY; Caissons, Canals, Coast Protection, Docks, Jetties, Lighthouses, Piers, Sea Walls, and Wharves, under WATERWAYS AND HARBORS; Hydro-Electric, under ELECTRICAL ENGINEERING, GENERATING STATIONS; Poles, under ELECTRICAL ENGINEERING, TRANSMISSION; Barges and Torpedo Testing, under MARINE AND NAVAL ENGINEERING: Flat Plates, under MECHANICAL ENGINEERING, MACHINE ELEMENTS AND DESIGN; Refrigeration, under MECHANICAL ENGINEERING, HEATING AND COOLING; Shafting, under MECHANICAL ENGINEERING, POWER AND TRANSMISSION; Shafts, Shaft Sinking and Timbering, under MINING AND METALLURGY, MINE CONSTRUCTION, PLANTS AND STATIONS, UNDER RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS; and Ties, under STREET AND ELECTRIC RAILWAYS.

Retaining Walls.


A Large Retaining Wall at Tacoma, Louis P. Zimmerman. Brief illustrated description of one of the largest concrete retaining walls on the Pacific Coast, 1030 w. Eng Rec—Nov. 28, 1908. No. 697.

Reinforced Concrete Retaining Wall at St. George, Staten Island. Louis L. Tribus. From a paper before the Munic. Engrs. of the City of N. Y. An illustrated description of the design and construction. 3500 w. Munic Engng—Feb., 1909. No. 2335 C.

A Large Concrete Retaining Wall. Illustrated detailed description of harbor work in Pittsburg. 2500 w. Eng Rec—April, 1909. No. 3689.

A Reinforced-Concrete Retaining Wall Along the Bank of the Ohio River. Frank


CIVIL ENGINEERING

Roofs


Roofs.


The Use of Asphaltum. Harry Larkin. Information concerning the uses and proper management of asphaltum work, the need of intelligent application, etc. 4500 w. Jour Assn of Engng Soc—Dec., 1908. No. 2415 C.


Kahn Reinforced Concrete Roof Over Extension to National Gallery. Illustrated description of interesting work in progress in London. 600 w. Engng—April 23, 1909. No. 4461 A.

Specifications.


Stacks.


A Steel Chimney. Gives points in favor of such chimneys, illustrating a recent type. 800 w. Ir & Coal Trds Rev—April 2, 1909. No. 3915 A.


The Chimney of the Boston & Montana Consolidated Copper & Silver Mining Company. Illustrated detailed description of the largest and highest chimney in the world, and its construction. 5500 w. Eng Rec—Nov. 28, 1908. No. 691.

The World's Largest Chimney: 50 x 500 ft. Brick Stack for the Boston & Montana Smelter at Great Falls, Mont. States the requirements and gives an illustrated description of the design and construction. 4000 w. Eng News—Nov. 26, 1908. No. 639.

Steel Buildings.

Essential Formulae in Structural Engineering. Horace Cubitt. Read before the Inst. of Munic. Engrs. Aims to show that the real essential formulae for structural engineering purposes are few. 3000 w. Archt, Lond—April 30, 1909. Serial, 1st part. No. 4394 A.

Secondary Stresses in Framed Structures. E. W. Pittman. Calls attention to faults in structural details causing these stresses, illustrating their effects on the strength of the structures. Discussion. 8000 w. Pro Engrs' Soc of W Penn—Feb., 1909. No. 3455 D.

Temperature Stresses in the Members of Steel Structures. States facts supporting the conclusion that the heat of the sun's rays may be great enough to form an appreciable addition to the load stresses. 2000 w. Eng News—Oct. 21, 1909. No. 8821.

Elastic Limit or Yield-Point as Guide for Working-Stresses. Editorial discus-
Steel Buildings

CONSTRUCTION

Steel Buildings


Statically Design of a Beam of 17.45 Metres Span (Calcul statique d'une Poutre de 17.45 m. de Portée). Herr Hattingerff. Mathematical discussion of the design of a plate girder to support an inclined reinforced-concrete roof. Ills. 4000 w. All Indus—Sept., 1909. No. 8621 D.


The Humboldt Savings Bank Building, San Francisco. C. Derleth, Jr. Describes building methods for this earthquake district adopted since the fire. Ills. 5500 w. Eng Rec—Nov. 21, 1908. No. 413.

The Alaska Commercial Building, San Francisco. Illustrated description of a 12-story and basement building, designed to resist earthquakes and fire. Located where quicksand and difficult foundation conditions were encountered. 1800 w. Eng Rec—Feb. 6, 1909. No. 2310.

Steel Buildings


The Allegheny County Soldiers’ Memorial. Section, plans and description of a fireproof public building in Pittsburgh, having interesting features of structural steel wkrk. 2200 w. Eng Rec—March 6, 1909. No. 2972.


The Racquet Club House, Philadelphia. Illustrates and describes a building having unusual features to meet special requirements. 1500 w. Eng Rec—Aug. 21, 1909. No. 7736.


The St. Paul Auditorium. Laurence A. Ball. Plans and description of the building, with discussion of its engineering features. 5000 w. Pro Brooklyn Engrs’ Club, No. 85—1908. No. 5876 F + F.

Structural Features of the Pope Building, Cleveland, Ohio. Illustrates and describes interesting features due to difficult foundations and irregular plan. 1600 w. Eng Rec—Oct. 31, 1908. No. 21.


Raising and Strengthening the Overseas Platforms of a Coaling Station at St. Vincent. Walter Sidney Harvey. Describes the construction of this coaling station on the Cape Verde Islands, and recent repairs. Ills. 2500 w. Inst of Civ Engrs—No. 3731. No. 886 N.

See also Coal Pockets, Domes, and Roofs, under Construction; Steel, under Materials of Construction; Water Towers, under Water Supply; Docks and Ferry Houses, under Waterways and Harbors; Derricks, under MECHANICAL ENGINEERING, TRANSPORTING AND CONVEYING; Rivet Holes and Riveted Joints, under MECHANICAL ENGINEERING, MACHINE ELEMENTS AND DESIGN; and Terminals, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS.

Swimming Pools.


See also same title under Municipal.

Tanks.


Timber Splicing.


Tunneling Machines.

CIVIL ENGINEERING

Tunnel Lining

A Tunnel-Boring Machine. Illustrated description of a machine designed by E. F. Terry and O. S. Proctor, said to be capable of driving an 8-foot tunnel in rock without blasting. 1000 w. Sci Am—Jan. 9, 1909. No. 1644.

Method of Lining the Second Bergen Hill Tunnel of the Lackawanna Railroad. Describes the interesting forms used, the methods of bringing in the materials, and the excellent surface and alignment. 2500 w. Eng Rec—Oct. 31, 1908. No. 23.


Tunnels.


Records of Driving Rock Tunnels and Some Comment on the High Cost of the Elizabeth Tunnel. Information relating to work on the tunnel that is to carry the water of the Los Angeles aqueduct through the Coast Range. 1200 w. Engng Con—Dec. 9, 1908. No. 922.


Tunnels and Subways. Illustrations and information in regard to these interesting engineering works in New York City and some of the difficulties met. 3000 w. Sci Am—Dec. 5, 1908. No. 815.


The Cortlandt Street Tunnel Under the Hudson River; Meeting of Headings. A brief account of the junction, outlining the work. 800 w. Eng News—Feb. 4, 1909. No. 2276.

East River Tunnel from South Ferry to Joralemon Street. Frederick C. Noble. Gives the history and illustrated general description of the tunnel and methods of construction. Discussion. Ills. 9000 w. Pro Brooklyn Engrs’ Club, No. 80—1908. No. 5871 F + F.


CIVIL ENGINEERING

Tunnels

construction of the tunnels extending eastward from the easterly extension of the Terminal Station to the permanent shafts east of First Avenue. 3000 w. Pro Am Soc of Civ Engrs—Oct., 1909. No. 8842 E.


The Tunnel of the New York, New Haven & Hartford Railroad at Providence, R. I. An account of railroad improvements, especially describing the tunnel, about 5,080 ft. long. Ills. 4500 w. Eng Rec—Nov. 7, 1908. No. 138.


The Detroit River Tunnel. Illustrates and describes this interesting work. 2500 w. Engr, Lond.—Feb. 19, 1909. No. 2888 A.


Progress of the Southwest Water Tunnel in Chicago. Illustrated detailed description of methods used in constructing this water supply tunnel. 4000 w. Eng Rec—Aug. 7, 1909. No. 6946.


Roosevelt Tunnel. R. L. Herrick. Describes the successful system of driving a tunnel through unusually hard rock, after it had been given up by three contractors. Ills. 5500 w. Mines & Min.—April, 1909. No. 3670 C.


The Gunnison Tunnel. Frank A. Newton. Describes work in connection with the irrigation system of the Uncompahgre Valley Project in the arid regions of the west. Ills. 1600 w. Wis Engr—Feb., 1909. No. 4317 D.


The Rotherhithe Tunnel. Edward Henry Tabor. Illustrated description of the construction of this tunnel under the Thames. Also discussion. 2750 w. Inst of Civ Engrs, No. 3743—Dec. 8, 1908. No. 6448 N.


Methods Employed in Driving Alpine Tunnels: The Loetschberg Tunnel. Walton J. Aims. Explains methods that have made possible more rapid driving than has yet been attained in America. 1500 w. Eng News—Dec. 31, 1908. No. 1407.

Rapid Methods in Driving Alpine Tunnels. Walter J. Aims. Results of the writer's observations on a recent visit to the Loetschberg tunnel, Switzerland. 1400 w. Compressed Air—Feb., 1909. No. 2412.

CIVIL ENGINEERING

Tunnels


The Railway Through Mont Blanc. Discusses this project of constructing a new international railway through the Western Alps. 4000 w. Bul Int Ry Cong—Feb., 1909. No. 3281 G.

A New Twelve-Mile Italian Tunnel. Illustrated account of the proposed new tunnel between Genoa and Milan. 2500 w. Engr, Lond—Feb. 12, 1909. No. 2703 A.

The Crossing of Sidney Harbor, New South Wales. An account of the final solution of conveying passengers across a deep and wide tidal channel, by constructing a tunnel similar to the system employed at the Detroit River. 2000 w. Engr, Lond—May 14, 1909. No. 4968 A.

Bridge and Tunnel Projects for Crossing the Harbor of Sydney, New South Wales. An illustrated description of the projects for furnishing direct communication across the harbor. Also editorial on the relative merits of bridges and tunnels for river crossings. 3500 w. Eng News—July 29, 1909. No. 6774.


See also Concrete, under CONSTRUCTION; Sewers, under MUNICIPAL; Drilling, under MINING AND METALLURGY; MINING; Tunnels, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS; and Subways, under STREET AND ELECTRIC RAILWAYS.

Underpinning.


Underpinning the Homeopathic Hospital, Pittsburg Explains conditions, and describes methods of underpinning this large brick building while making the necessary repairs. Ills: 1200 w. Eng Rec—April 3, 1909. No. 3696.

The Knickerbocker Trust Building Substructure. Describes and illustrates interesting details in the method of protecting an adjacent structure, while erecting a 22-story steel cage office building on soil consisting of quicksand underlaid with a stratum of hardpan. 4000 w. Eng Rec—April 24, 1909. No. 4169.


Wage Systems.

See same title, under INDUSTRIAL ECONOMY.

Walls.

The Stability of Walls. Henry Adams. Read before the Soc. of Archts. Deals only with walls which have no load but their own weight to support, and no thrust but the wind to resist, discussing the general principles that determine stability. 5000 w. Surveyor—Jan. 15, 1909. No. 2054 A.

Waterproofing.

Waterproofing—An Engineering Problem. Myron H. Lewis. Explains the meaning of the term in its broad sense, and the importance to engineers, discusses the design of waterproof systems, and related subjects. Discussion. 16000 w. Pro Engrs' Club of Phila—Oct., 1908. No. 4324 D.


CIVIL ENGINEERING

Waterproofing


See also Reinforced Concrete, under CONSTRUCTION; and Refrigeration, under MECHANICAL ENGINEERING, HEATING AND COOLING.

Wrecking.


MATERIALS OF CONSTRUCTION

Asphalt.


Brick.


Tests of Brick Columns and Terra Cotta Block Columns. Arthur N. Talbot and Duff A. Abrams. Describes tests made of 16 short columns of brick and 16 columns built of terra cotta blocks. Ills. 11000 w. Univ. of Ills, Bul No. 27—Sept. 29, 1908. No. 3808 N.

Silico-Calcareous Bricks. E. Leduc. From a paper in the Bul de la Soc. d'Encour, pour l'Ind. Nat. Deals with the history, economic development, manufacture, etc. 3000 w. Quarry—May, 1909. Serial, 1st part. No. 4660 A.


See also same title, under CONSTRUCTION; and Concrete, under MATERIALS OF CONSTRUCTION.

Cement.


The Action of Sea and Fresh Water on Cement and Concrete. Ernest R. Mat-
MATERIALS OF CONSTRUCTION

Concrete


Concrete Aggregates. Explains the scope of a special commission of the British Fire Prevention Committee to report on suitable aggregates for concrete floors intended to be fire-resisting. 2000 w. Surveyor—Jan. 8, 1909. No. 1809 A.


Progress Report of Special Committee on Concrete and Reinforced Concrete. A report of the present judgment of the Committee concerning the proper use of these materials. 10500 w. Pro Am Soc of Civ Engrs—Feb., 1909. No. 3457 E. No. 1744 D.

Progress Report of Special Committee on Concrete and Reinforced Concrete. Continued discussion. 8000 w. Pro Am Soc of Civ Engrs—Sept., 1909. No. 8187 E.

The Dangers of Breeze Concrete. Discusses the experiments recently carried out by D. B. Butler. Ills. 1000 w. Engng—April 30, 1909. No. 4625 A.

Good Concrete and How to Get It. Frank M. Okey. From a paper before the Iowa Cement Users Assn. Discusses the effect of the different materials used. 2000 w. Minn Engng—May, 1909. No. 4549 C.


Cement

The thaws. Gives conclusions reached by three well-known authorities after a series of tests, and also particulars of the writer’s experiments. 3000 w. Surveyor—March 12, 1909. No. 3407 A.


The Effect of Electrolytes on the Setting of Cement (Die Wirkung von Elektrolyten auf die Zementabbindung). Dr. Rohland. Considers the influence of various salts. 2500 w. Stahl u Eisen—Dec. 9, 1908. No. 1942 D.


See also Mortar, under MATERIALS OF CONSTRUCTION; Drainage, under MUNICIPAL, and same title, under MINING AND METALLURGY, MINOR MINERALS.

Cement Blocks.

The Present and Future of the Cement Block. J. Augustine Smith. Extracts from a paper read before the Nat. Assn. of Cement Users. Reviews the development of this material and considers the outlook promising. 3500 w. Cement Age—April, 1909. No. 4080.

Cement Testing.


The Micrographic Examination of Cement (Ueber mikrographische Zementuntersuchung). Ernst Stern. Describes the utility of microscopic examination, methods used, etc. Ills. 3000 w. Stahl u Eisen—Oct. 21, 1908. No. 547 D.


See also Cement Testing, under MEASUREMENT.
Concrete

Tests of Plain and Reinforced-Concrete Columns. M. O. Withey. Read before the Am. Soc. for Test. Mat. Reports tests made in the laboratory at the Univ. of Wis. during the past year. 2500 w. Eng News—Sept. 16, 1909. No. 7866.

Impurities in Sand for Concrete. An informal discussion at the annual convention, July 8, 1909. 6000 w. Pro Am Soc of Civ Engrs—Sept., 1909. No. 8189 E.


See also Concrete, under CONSTRUCTION; and Cement, Reinforced Concrete and Mortar, under MATERIALS OF CONSTRUCTION.

Fireproof.


Fireproofing.

Fireproofing Solutions (Feuersichere Imprägnierungsmittel). Herr Wendt. Describes various materials used for impregnating wood, etc., for fireproofing purposes. 2500 w. Gesundheits-Ing—April 24, 1909. No. 4890 D.


Lime.


Mortars.

The Chemical and Microscopic Study of Mortar, Cement, and Pozzolana. Summary of effects observed by different examiners. 1500 w. Builder—Aug. 7, 1909. No. 7082 A.

Calcium Aluminates; Their Effect on Mortars. Henry S. Spackman. Gives analyses and tests with results. 4000 w. Jour Fr Inst—March, 1909. No. 3250 D.

The Adhesion of Mortar and Concrete. R. Feret. Information concerning the adhesion to various materials, giving rules for building of structures where adhesion is of prime importance. 1500 w. Cement—Sept., 1909. No. 8306 C.


See also Cement and Concrete, under MATERIALS OF CONSTRUCTION.

Paints.


CIVIL ENGINEERING

Paving Brick

Artificial Magnetic Oxide of Iron. F. J. R. Carulla. Read before the Ir. & St. Inst. Claiming that William Gregory first discovered the artificial production of magnetic oxide of iron, and matters relating to this productive paint. 1500 w. Engng—Oct. 15, 1909. No. 8937 A.


Paving Brick.


Reinforced Concrete.

Reinforced Concrete. Arthur C. Auden. Remarks on its lasting qualities, the materials used, and their comparative value, reinforcement, the uses to which this material is applied, etc. Ills. 8000 w. Inst of Mech Engrs—July, 1909. No. 668 N.


The Composition and Uses of Plain and Reinforced Concrete. Charles F. Marsh. Read before the Concrete Inst. Briefly discusses the mixing, aggregates, waterproofing, nature of reinforcement, etc. 2000 w. Surveyor—Nov. 20, 1908. No. 728 A.


Reinforced Concrete

need of this material and the results of investigations. 1500 w. Engng-Con—July 14, 1900. No. 6320.


Tests on Bond Between Steel and Concrete. H. C. Berry. A report of tests made to determine the change in bond strength as age increased for specimens stored in air and in water, and to compare the bond strength of different forms. 1200 w. Eng Rec—Sept. 4, 1909. No. 7561.


The Corrosion of Steel Reinforcement in Concrete. Ernest R. Matthews. Describes experiments in connection with the rusting of steel in concrete, explaining in detail the tests made by the writer, and stating conclusions. 4500 w. Soc of Engrs—April 5, 1909. No. 4002 N.

The Effect of Repeated Stress on the Bond between Concrete and Clean and Rusted Iron (Einfluss wiederholter Beanspruchung auf die Haftfestigkeit von Beton an Eisen mit reiner und verrosteter Oberfläche). Bernh. Kirsch. Results of tests. 2400 w. Oest Wochenschr f d Oeffent Baudienst—April 24, 1909. No. 4804 D.


See also Concrete, under MATERIALS OF CONSTRUCTION.

Steel


The Growth of the Angle Bar. M'Leod Thomson. Illustrated review of development and progress giving some new patterns thought to embody the most recent ideas. 2500 w. R R Age Gaz—Nov. 6, 1908. No. 127.


Some Experiments on Solid Steel Bars Under Combined Stress. C. Alfred Smith. Compares results of different tests made to determine the cause of elastic failure of ductile materials, attempting to reconcile divergent data. 4000 w. Engng—Aug. 20, 1909. No. 7744 A.

The Condition of the Steel Work in a San Francisco Building Erected 13 Years Ago. Frank B. Gilbreth. Reports the conditions of steel work in the Mutual Life Insurance Co.'s building after being subject to earthquake and fire, and the conclusions drawn. 1500 w. Cement—June, 1909. No. 6376 C.


See also Blackwell's Island, under BRIDGES.

Steel Corrosion.

See Steel, under BRIDGES.

Steel Preservation.

Steel Sections


Steel Specifications.


Stone.

See Concrete, under Materials of Construction.

Stone Preservatives.


Stucco.

Mortars for Stucco and Methods of Applying and Finishing Stucco. Gives precautions that should be observed to secure good work. 2500 w. Engng-Con—Aug. 11, 1909. No. 7003.

Terra Cotta.

See Fireproof, under Construction; and Brick, under Materials of Construction.

Timber.


Specifying and Inspecting Lumber. From comment by W. F. Goltra, on the paper read by J. M. McCarthy before the Ry. Storekeepers’ Assn. Urges the adoption of the standard rules of the manufacturers, and inspection at the mill or shipping point. 1000 w. R. R. Age Gaz—July 23, 1909. No. 6632.


Afforestation and Timber-Planting in Great Britain and Ireland. Dr. J. Nisbet. Reviews the work of British Commissions appointed to deal with this question, explains the present situation, and discusses the possibilities. General discussion. 10000 w. Jour Soc of Arts—March 26, 1909. No. 3771 A.


See also Concrete, under Materials of Construction.

Timber Preservation.

A Primer of Wood Preservation. W. F. Sherfesee. Considers decay and how it can be retarded; and preservatives and processes used in the United States. 6000 w. U S Dept of Agri, Circ. 139—Feb. 8, 1908. No. 477 N.


CIVIL ENGINEERING


The Relation of Non-Pressure Processes of Wood Preservation to Pressure Processes. W. F. Sherfesees. Shows that the non-pressure simplifies both the processes and the mechanical equipment, and that they do not compete with the pressure processes. Ills. 3300 w. Eng News—March 4, 1909. No. 2094.


Asphalt Testing.


Base Lines.


Cement Testing.


Portland Cement: The Le Chatelier Test for Soundness. Arthur Charles Davis. Reports results of tests on the
 expansion of cements and conclusions. 2500 w. Inst of Civ Engrs—No. 3777. No. 6451 N.


See also same title, under MATERIALS OF CONSTRUCTION.

Clay-Products Testing.

Testing Clay Products. A. V. Bleinin-ger. Gives an outline of tests to be made at Pittsburg laboratories to determine their fire-resisting properties. 1600 w. Ins Eng—March, 1909. No. 3500 C.

Concrete Testing.

Specifications for Test Specimens of Concrete to be Immersed in Sea Water by the United States Navy Department. Specifications drawn for guidance in conducting a series of tests under government supervision at the Navy Yard at Charlestown, Mass. 1500 w. Engng-Cons—Dec. 30, 1908. No. 1452.

A New Test for Concrete. J. S. Owens. Describes the origin and application of a new test for determining the end of the mixing process in preparing concrete. 6000 w. Soc of Engrs—March 1, 1909. No. 3284 N.

See also Testing Machines, under MEASUREMENT.

Current Meters.

Current Meter Rating. Francis C. Shenehon. Describes the calibration or rating of the current measuring instrument or meter. Ills. 4500 w. Minn Engr—March, 1909. No. 4061 C.


Datum Plane.

The Datum Plane. Otto Klotz. Discusses the subject from the points of view of the intellectual datum plane and the physical datum plane, referring to specific work depending on it. 7500 w. Pro Soc of Ap Sci—Session 1908-1909. No. 4094 C.

Hydrographic Surveying.

See Survey Vessels, under MARINE AND NAVAL ENGINEERING.

Latitude.

The Determination of Latitude. L. B. Steward. Brief account of the principal methods which are adapted to the use of the surveyor's transit or the sextant, with brief reference to precise methods. 4000 w. Ap Sci—March, 1909. No. 4090 C.

Levelling.


Mensuration.


The Computation of Area. Frank J. Gray. Deals with the computation of various forms, such as rectangles, triangles, polygons, etc. 2000 w. Surveyor—Sept. 3, 1909. Serial. 1st part. No. 7737 A.

Range Finders.


Soil Testing.


Stream Gauging.


The Design of Cable Stations for River Measurements. J. C. Stevens. Illustrated detailed description of the design of river-
Surveysing

Surveying


Some Extensive Railroad Surveys, and Their Cost per Mile. Discussion of the paper by W. S. McFetridge, on this subject. 4000 w. Pro Am Soc of Civ Engrs—Aug., 1909. No. 7668 E.

A Description of Four Stadia Surveys and Their Cost. Arthur W. Tidd. Describes the methods used for conducting and systematizing the work; also giving cost data and other information. 4000 w. Eng News—Oct. 21, 1909. No. 8818.


MEASUREMENT

Club of Baltimore, giving a general account of this work. 2800 w. Eng Rec—Jan. 2, 1909. No. 1424.


The Ordnance Survey. Sir Duncan Alexander Johnston. A brief historical sketch, describing how the cadastral survey of Great Britain was made, and showing how the maps are being revised. 3500 w. Surveyor—Feb. 12, 1909. Serial. 1st part. No. 2586 A.


See also same title, under MINING AND METALLURGY, MINING.

Testing Machines


Testing Laboratories


See also same title, under MECHANICAL ENGINEERING, MEASUREMENT.

Testing Machines


CIVIL ENGINEERING

Testing Machines


Abattoirs.


Asphalt Plants.


Catch Basins.


Cesspools.


City Building.

Building an Industrial City. Illustrated description of the development of the residence portion of Gary, Indiana; the public utilities problems and how they were handled. 2000 w. Ir Age—July 1, 1909. No. 6059.

City Charters.


City Improvement.


City Planning.

Improvement of Town Suburbs. George Cowan. Presents the need of town planning, discussing some of the difficulties and problems. 3000 w. Surveyor—Feb. 19, 1909. No. 2884 A.


The New Capital for Australia. Information concerning the site selected, treat-
Drainage


Experimental Data on Methods and Costs of Draining Irrigated Lands. Plans and description of the draining of Geary farm, Huntington, Utah, and also other work done, showing differences in countries having an underflow, and those underlaid with bog land. 4500 w. Engng-Contr—Oct. 20, 1909. No. 8795.


Experiences in Working Separate Drainage Canals (Über Erfahrungen im Betriebe getrennter Entwässerungskanäle). H. Metzger. Compares the operation of separate storm-water and sewerage systems with the combined system. 3000 w. Gesundheits-Ing—April 17, 1909. No. 4887 D.


See also Reclamation under Construction; Sewers and Street Grading, under Municipal; Purification, under Water Supply; and Canals, under Waterways and Harbors.

Garbage Disposal.

See Refuse Disposal.

Malvern, England.


Municipal Engineering.

The Municipal Engineer: His Duties and Responsibilities. F. J. Edge. Presi-
CIVIL ENGINEERING

Pavements

MUNICIPAL

Pavements


The Construction of an Asphalt Street. Isaac Van Trump. From an address at the Univ. of Notre Dame, Ind. Describes the methods of construction. 1500 w. Munic Engng—April, 1909. No. 3819 C.

Causes and Prevention of Defects in Asphalt Pavements. Isaac Van Trump. From an address at Notre Dame Univ., Ind. Discusses the main causes, showing that many are under the control of the municipal engineer. 1200 w. Munic Engng—May, 1909. No. 4551 C.


Portable Machines for Making Asphaltic Concrete Paving. Illustrates and describes these machines and gives an account of work in Chicago. 5000 w. Eng News—Oct. 21, 1909. No. 8820.


Mosaico Pavements (Pavimenti e Rivestimenti a Mosaico). Discusses pavements of artificial stone, the manufacture of the blocks, construction of the pavement, etc. Ills. Serial. 1st part. 2500 w. II Cemento—Jan. 15, 1909. No. 2653 D.

Civil Engineering

Public Baths


See also Asphalt, and Paving Brick, under MATERIALS OF CONSTRUCTION; Asphalt Plants, under MUNICIPAL; and Asphalt Testing, under MEASUREMENT.

Public Baths.


New Municipal Bath at Milan (Nuovo Bagno municipale a Milano al Ponte delle Gabelle). Describes a large modern installation. Ills. 3000 w. Monit Tech—June 30, 1909. No. 6553 D.

The Wiesbaden Public Baths (Entwicklung und Betrieb der Volksbadanstalten in Wiesbaden). B. Berlit. Describes the buildings, their equipment, etc. 8000 w. Gesundheits-Ing—Feb. 20, 1909. No. 3390 D.

Refuse Destructors.


Refuse Disposal.


Electricity Works and Refuse Destroctors. J. A. Robertson. Abstract of paper before the Glasgow Sec. Aims to show the benefits from the combination of electricity works and refuse destructors under certain conditions. 4000 w. Elec Engr, Lond—April 16, 1909. No. 4190 A.

Electricity Works and Refuse Destroctors. J. A. Robertson. Abstract of paper before the Glasgow Sec. of the Inst. of Elec. Engrs. Deals with the nature of the problem, the most important points in destructor design, and gives results at Greenock. 5500 w. Elect'n, Lond—April 23, 1909. No. 4450 A.


Refuse Disposal


Specifications and Bids for an Incinerating and Power Generating Plant for Milwaukee, Wis. Information in regard to this plant, with specifications and editorial. 4500 w. Eng News—April 22, 1909. No. 4164.

The New Garbage Reduction Plant at St. Louis. Very extensive works to handle the entire garbage output of the city and to reclaim by-products, are illustrated and described. 4000 w. Eng Rec—July 3, 1909. No. 6176.

The Utilization and Disposal of Destructor Clinker. E. R. Sutcliffe. Gives suggestions as to how this material may be disposed of to the best advantage. IIs. 3000 w. Surveyor—March 26, 1909. No. 3781 A.

Acton Refuse Destructor. C. J. Yorath. Illustrated detailed description of a plant for a rapidly growing district. 3500 w. Surveyor—March 5, 1909. No. 3158 A.


See also Central Stations, under ELECTRICAL ENGINEERING, GENERATING STATIONS.

Roads.


The First International Road Congress at Paris in October, 1908; What Led Up to It; Its Deliberations; and Its Results. Austin B. Fletcher. Relates mostly to macadam roads and motor vehicles. IIs. 12500 w. Jour Assn of Engng Socs—April, 1909. No. 5841 C.

The Road Congress (Le Congrès de la Route). A. Loreau. A report of the proceedings of the International Highway Congress with the text of the resolutions and conclusions. 7000 w. Mem Soc Ing Civ de France—Nov., 1908. No. 2901 G.

The First International Highway Congres (Le premier Congrès international de la Route.) M. Le Gavriant. A review of the proceedings and the work accomplished. 11000 w. Ann d Ponts et Chauss—1908 V. No. 2699 E + F.


Construction and Maintenance of Roads. George A. Phillips. Read at
CIVIL ENGINEERING

Roads


Road Construction and Maintenance. R. E. B. Crompton. Claims that it is now possible to build dustless roads at no greater cost than for ordinary roads. 2500 w. Autocar—Jan. 30, 1909. No. 2340 A.


Road Maintenance in France and Ireland. R. H. Dorman. Read before the Int. Road Cong. A comparison of roads and methods in the two countries, and suggests alterations that should be made in Irish laws relating to road maintenance. 1800 w. Surveyor—Dec. 4, 1908. No. 1011 A.

Effect of the Road Surface on Vehicles. C. S. Rolls. Read before the Int. Road Cong. Discusses improvements that would increase the life of the vehicle and the comfort of passengers. 1200 w. Surveyor—Dec. 4, 1908. No. 1012 A.


Improvements in Self-Propelled Vehicles for the Reduction of Road Wear. Col. R. E. Crompton. Read before the Int. Road Cong. Discusses some points in regard to their effect on roads, such as steel studded tires, diameter of driving wheels, etc. 1200 w. Surveyor—Nov. 20, 1908. No. 727 A.


Examination of Tars for Use on Roads. Clayton Beadle and Henry P. Stevens. An experimental study with a view to determining the advantages of the different grades. 3000 w. Surveyor—Dec. 4, 1908. No. 1014 A.

Modern Road Management. E. Purnell Hooley. Read before the Int. Road Cong. Discusses the construction of roads to meet changed conditions of self-propelled traffic, favoring the tarmac road. 2200 w. Eng Rec—Nov. 7, 1908. No. 140.

Macadam Road Surfacing. Walter Wilson Crosby. Read before the Paris Int. Road Cong. Discusses the proper construction of macadam roads to meet present conditions. 2500 w. Surveyor—Nov. 27, 1908. No. 859 A.


CIVIL ENGINEERING

MUNICIPAL

Roads

Methods of Preventing Damage to Road Surfaces by High Speed Motor Cars. From a report by Nelson P. Lewis to the Board of Estimate and Apportionment of New York City. 3500 w. Engng-Con—Feb. 10, 1909. No. 2459.


French Roads and Roadmaking. Francis Miltoune. Information of interest, as France is noted for excellent roads. IIs. 2200 w. Autocar—April 3, 1909. Serial. 1st part. No. 3893 A.


Road Grades (Sulla Pendenza delle Strade Ordinarie). Giulio Stabilini. A mathematical discussion of highway grades and traction. IIs. Serial, 1st part. 2500 w. Monit Tech—April 30, 1909. No. 4847 D.


Highway Administration and Reform. Discusses conditions in England, the need of reforming the present system of administration, with suggestions. 3000 w. Surveyor—Feb. 26, 1909. No. 3057 A.

Some Methods of Modern Road Construction. George W. Manning. From a paper before the Midland Assn. of Loc. Gov. Officers. Suggestions as to what should be done to fit English roads for modern requirements. 2500 w. Surveyor—Feb. 26, 1909. No. 3058 A.


The Development of Modern Road Surfaces. W. H. Fulweiler. Reviews briefly the ancient roads, and later street improvements, illustrating and describing types of road construction, and discussing the effect of automobiles, dust prevention, etc. IIs. 8000 w. Jour Fr Inst—Sept., 1909. Serial. 1st part. No. 7884 D.

Road Materials and Some Simple Rules for Testing Them. Austin B. Fletcher. Read at meeting of the First Congress of Road Builders. The discussion is limited to the materials found in Massachusetts. 3500 w. Engng-Con—Sept. 1, 1909. No. 7517.


Sub-Grade Preparation in Road Construction. James H. MacDonald. Abstract of paper before the first Am. Cong. of Road Bdrs. Directions for a well-built
CIVIL ENGINEERING

Roads


Experimental Road Work by the Massachusetts Highway Commission in 1908. Reviews work with dust layers, road preservatives, new binders, resurfacing, etc. 7000 w. Engng-Con—May 5, 1909. No. 4533.

Recent Maintenance Work of the Massachusetts Highway Commission. Describes experiments made to determine what method of construction should be used to prevent undue damage by automobiles and prevent intolerable dust. 6000 w. Eng Rec—March 20, 1909. No. 3273.


Road Materials and Some Simple Rules for Testing Them. Austin B. Fletcher. Read before the Congress of Road Bldrs. Discusses principally materials used in Massachusetts, such as sand and clay, gravel, rock, and bituminous materials. 3500 w. Eng Rec—July 31, 1909. No. 6794.


Methods of Constructing Roads Over Soft Ground. Explains methods employed to secure good foundations for roads crossing bogs, swamps, etc. 3000 w. Engng-Con—June 30, 1909. No. 6117.

Specifications and Notes on Macadam Road Construction. A. N. Johnson. Considers in detail the road-bed, thickness of macadam, cross-slope, materials, etc., methods of construction, and related sub-

jects. 12500 w. Jour W Soc of Engrs—Dec, 1908. No. 1859 D.


Homogeneous "Double-Sealed" Road 1500 w. Surveyor—April 23, 1909. No. 4453 A.


Macadam Roads. Austin B. Fletcher. Read before the Nat. Good Roads Cong. Considers the characteristics of the modern macadam road, their cost, the effect of automobiles, etc., giving information relating to roads in Massachusetts. 2800 w. Eng Rec—Oct. 1, 1909. No. 8240.

The Cost of Adapting Macadam Roads to Automobile Traffic. Henry Tipp. Gives some details of costs, which will vary in different places and under different conditions. 1800 w. Munic Engng—Sept., 1909. No. 8052 C.


Experimental Tar Treatment on the Havel Road (Die Probeteuerungen auf der Havel-Chaussée). Discusses and discusses dust-laying experiments in the neighborhood of Berlin. Iils. 3000 w. Zeitschr d Mit Motorwagen Ver—Sept. 15, 1909. No. 8670 D.

English Methods of Tar Spraying for Dust Prevention and Some General Costs of the Work. Gives a summary of some of the replies received to inquiries sent out by the paving committee of the London Metropolitan Borough Councils. 1500 w. Engng-Con—Sept. 29, 1909. No. 8230.


Has Experience Demonstrated that the Oiling of Roads Is the Most Satisfactory or Economical Method of Preventing Dust and Preserving the Road Surface? A discussion at the annual convention, July 8, 1909. 2000 w. Pro Am Soc of Civ Engrs—Sept., 1909. No. 8190 E.


The Great German Military Road and Boulevard. H. Prime Kieffer. Illustrated detailed description of the construction of this road, which will probably be the most beautiful in the world. 3000 w. Munic Engng—June, 1909. No. 5558 C.

Italian Highways (Le Strade ordinarie in Italia). A detailed description of the systems of road administration, construction and maintenance in the various provinces. Serial, 1st part. 4700 w. Monit Tech—July 30, 1909. No. 7240 D.

The Road Improvement Bill. Discusses the proposed Board in England,
No. 7799 A.

Road Exhibition in Paris, 1908 (Die Pariser Strassenbauausstellung 1908). A. Liebmans. Describes an exhibit of road and pavement materials and machinery in connection with the first International Road Congress. 2500 w. Glasers Ann—Sept. 15, 1909. No. 8683 D.


Sanitation.


See also Cesspools, under Municipal.

Septic Tanks.


Sewage Disposal.

Fundamental Principles of Sewage Purification on Land. Rudolph Hering. Reviews the phases of sewage purification, as based on a study of practice in Europe and America, especially considering the physical conditions. 6500 w. Eng News—May 6, 1909. No. 4521.


Modern Methods of Sewage Disposal as Applied to Public Institutions. Frank Grove. Prize paper. Briefly considers the methods of treatment by irrigation, by chemical treatment, and biological filtration. Ills. 2200 w. Surveyor—Oct. 23, 1908. No. 64 A.


A New Method of Sewage Purification (Der Emscherbrunnen, ein neues Verfahren der Abwasserreinigung). P. Kurgass. Describes a system adapted to cities of moderate size. Ills. 3300 w. Zeitschr d Ver Deutscher Ing—Oct. 24, 1908. No. 605 D.

CIVIL ENGINEERING

Sewage Disposal  MUNICIPAL  Sewage Disposal

Status of Sewage Disposal in America. Alexander Potter. From an address at Indianapolis, Ind. On the need of concerted action and advising the creation of a National Board of Health to advise and arbitrate where interstate questions arise. Ills. 1500 w. Munic Engng—Aug., 1909. No. 7029 C.


The Royal Prussian Testing Institute for Water and Sewage Purification A. Elliott Kimberly. Explains the function of the Institute, the departments, general features, etc. 1500 w. Eng News—Jan. 28, 1909. No. 2154.

A New Method of Treating Sewage. K. Imhoff. Illustrated description of method of sewage treatment used in Germany, in which deep tanks receive the sludge. 2500 w. Surveyor—May 21, 1909. No. 5189 A.


Discussion on Topics Connected With Sewage Disposal. 8000 w. Pro Engrs' Club of Phila—Jan., 1909. No. 6363 D.

Sewage Purification Works Visited in Europe. George S. Webster. Describes interesting features observed. 3500 w.
Sewage Disposal


Experimental Treatment of Effluents of Sprinkling Sewage Filters. Notes from the annual report of the Massachusetts Board of Health on the results of experiments made at the Lawrence Experiment Station. 1700 w. Eng Rec—Nov. 28, 1908. No. 696.

On Percolation Beds. William Clifford. An account of experiments relating to the physical conditions obtaining in sewage filter-beds, with special reference to percolation beds. 4500 w. Inst of Civ Engrs—No. 3751. No. 883 N.


The Principal Claims of Collecting Sewers (Ueber Sammelkanäle und deren Höchstbeanspruchung). Wilhelm Voit. A discussion of their design, with description of types, etc. Ills. Serial, 1st part. 2500 w. Zeitschr d Oest Ing u Arch Ver—July 9, 1909. No. 7452 D.

The Lawrence Experiments Regarding the Distribution of Sewage over Sprinkling Filters. From the report of H. W. Clark describing the researches of the Massachusetts Board of Health. 5000 w. Eng Rec—Dec. 26, 1908. No. 1247.


The Application of Small-Scale Biological Purification (Le Applicazioni della Depurazione biologica agli Edifici isolati). Illustrates and describes various systems of sewage treatment for isolated houses. 4200 w. Monit Tech—Nov. 20, 1908. No. 1136 D.

An Electrically-Driven Sewage System. Illustrated description of the installation of ejectors at Whickham, near Newcastle-on-Tyne. 1700 w. Elect'n, Lond—Jan. 1, 1909. No. 1700 A.

Small Sewage Purification Plants (Die Abwasserreinigung im Kleinbetrieb). Dr. A. Lübbert. Reviews a number of small plants for hotels, villages, etc., with comments on current practice. Ills. Serial, 1st part. 2500 w. Gesundheits-Ing—Feb. 27, 1909. No. 3391 D.


Composition, Tests, and Utilization of Colombes Sewage Residues (Analyses et Expériences sur les Boues de Colombes et Remarques sur leur Utilisation). E. Damour. An examination of the possibility of using sewage residues in the gas...


Official Reports on Discharge of Sewage into New York Harbor. Information from the reports of Col. W. M. Black concerning the amount of sewage that may be discharged into the harbor and the proper treatment. 1800 w. Eng Rec—Oct. 23, 1909. No. 8702.


The Sewer System of San Francisco, and a Solution of the Storm-Water Flow Problem. C. E. Grunsky. Describes the topography and conditions to be met, the design of a sewer system, methods of estimating capacity, types of sewers, etc. Maps. 28000 w. Pro Am Soc of Civ Engrs—March, 1909. No. 3495 E.

The Sewer System of San Francisco, and a Solution of the Storm-Water Flow Problem. The paper by C. E. Grunsky is discussed. 6500 w. Pro Am Soc of Civ Engrs—Aug., 1909. No. 7370 E.


The New Sprinkling Filter at Reading. Illustrated description of the addition to the sewage purification plant which has doubled the filtering area. 3500 w. Eng Rec—Sept. 25, 1909. No. 8067.


Sewage Disposal at Columbus, Ohio. E. A. Kemmler. Illustrated detailed description of the sewage purification works consisting of septic tanks, sprinkling filters and settling basins, all constructed of concrete and steel, with data of operation. 4000 w. Munic Jour & Engr—May 5, 1909. No. 4514.


Some Sewage Purification Problems in Wisconsin. G. J. Davis, Jr. States the present conditions and some of the problems needing solution. Ills. 2500 w. Wis Engr—June, 1909. No. 5693 D.


Sewage Disposal

The Durham Main Sewerage Works. H. W. Taylor. Reviews the original scheme of sewage disposal, and describes the scheme finally adopted, with information related. Ills. 3000 w. Surveyor—Sept. 3, 1909. No. 7738 A.


Sewerage and Sewage Disposal Works at Ruislip-Northwood. W. Louis Carr. Sketches the conditions and general character of the district, showing the difficulties, methods of overcoming them, and the results. 5000 w. Surveyor—July 30, 1909. No. 6969 A.

The Unna Biological Purification Plant (Die biologische Kläranlage der Stadt Unna). C. Modersohn. Describes the construction and operation of a plant to serve a city of 11,000 inhabitants. Ills. 3800 w. Gesundheits-Ing—Jan. 23, 1909. No. 2807 D.


See also Culverts, under BRIDGES; Drainage, under MUNICIPAL; Harbor Pollution, under WATERWAYS AND HARBORS; and Purification and Sterilization, under WATER SUPPLY.

Sewage Drying.


Sewage Pumping.

See Pumping Plants, under MECHANICAL ENGINEERING, HYDRAULIC MACHINERY.

Sewage Purification.


See also Purification, under WATER SUPPLY.

Sewage Tanks.


Sewage Testing.

Sewage Testing Station for the City of Philadelphia. Illustrated description of details of the equipment and work of investigation, with a view of determining the processes best adapted to secure desired results. 2500 w. Eng Rec—July 17, 1909. No. 6399.

Sewerage Statistics.


Sewer Gases.


Sewer Gauging.


Sewers.


Sewer Tunnelling. Alfred E. Snape. Read before the Inst. of Co. and Munic. Engrs. Describes methods used in actual
practice. IIs. 6000 w. Surveyor—July 9, 1909. Serial, 1st part. No. 6415 A.


Sea Outfall-Sewers. Ben Howarth. Considers the requirements of such sewers, and describes outfall sewers on the British Coasts. 5000 w. Inst of Civ Engrs (Students' paper No. 615.)—Feb. 13, 1908. No. 6453 N.

Recent Improvements of Stony Brook, Boston. Illustrated description of work under supervision of the sewer department, and of the interesting features of the contractor's plant. 2800 w. Eng Rec—Feb. 6, 1909. No. 2308.

The Construction of the Bronx Valley Sewer. Illustrates and describes the construction of this sanitary sewer which is to serve eight villages along the Bronx River. 5000 w. Eng Rec—Jan. 9, 1909. No. 1570.


Reinforced Concrete Interception Sewer. Alexander J. Taylor. Illustrates and describes a sewer at Wilmington, Del., explaining the difficulties. 3000 w. Munic Jour & Engr—Nov. 18, 1908. No. 331.


Early History of Sewers in Memphis, Tenn. A. T. Bell. Describes the city and the special features of the sewer system. 2500 w. Munic Engng—Oct., 1909. No. 8510 C.


Sewerage and Drainage Improvements at Cairo, Illinois. Illustrates and describes sewers for a city at the junction of the Ohio and Mississippi rivers, and so needing protection from floods. 1800 w. Eng Rec—April 17, 1909. No. 4014.

Methods and Cost of Constructing a Concrete Sewer in Freezing Weather. Describes work at Fond-du-Lac, Wis., during Nov. and Dec., 1908, with the thermometer ranging from 15 degrees below zero, to the freezing point. IIs. 1500 w. Engng-Con—Jan. 27, 1909. No. 2142.

Planning the Clinton Sewers. C. P. Chase. From a paper before the Iowa Soc. of Engrs. An account of the surveys made and statistics gathered for planning a sewer system. 1700 w. Munic Engng—April, 1909. No. 3818 C.

CIVIL ENGINEERING

Sewers


A Large Reinforced Concrete Sewer. Methods and costs of construction of a large section of sewer in the Northern part of St. Louis. 2300 w. Eng Rec—June 5, 1909. No. 5828.


The Water-Works and Sewerage of Monterey, Mex. Illustrated account of the water supply and main drainage works being constructed by Monterey Railway, Light and Power Company. Plate. 1500 w. Engr, Lond.—Nov. 6, 1908. Serial. 1st part. No. 327 A.

Glassgow South-Side Sewage Outfall Works. Illustrates and describes some details of works under construction. 1500 w. Engr, Lond.—Feb. 5, 1909. No. 2493 A.


See also Excavation, under Construction; and Drainage, under Municipal.

Sewer Trenches.

Comments on methods of Excavating Trenches and Ditches. First instalment of a series of articles which will discuss methods and costs. IIs. 2150 w. Engng-Contr—June 2, 1909. No. 5306.

See also Excavation, under Construction.

Sidewalks.

Sidewalk and Curb Design and Construction. Selections from a pamphlet of instructions issued by the Board of Public Works of Poughkeepsie. IIs. 2500 w. Munic Engng—Sept., 1909. No. 8054 C.


Stone Crushing.


See also Quarrying, under Mining and Metallurgy, Mining.

Street Cleaning.


Street Grading.

A New Method of Grading and Draining Street Intersections. William W. Marr. Gives arguments for and against the forms known as “inlet corners” and “summit corners,” and describes a form which is believed to be an improvement. IIs. 1000 w. Eng News—Oct. 7, 1909. No. 8405.


The Seattle Regrade, with Particular Reference to the Jackson St. Section Louis F. Zimmerman. An illustrated de-leveling of the hilly streets and adjacent description of the extensive re-grading and property. 2200 w. Eng News—Nov. 12, 1908. No. 230.

Street Records.


Street Sprinkling.


Swimming Pool.

WATER SUPPLY

France, Ills. 11200 w. Ann d Ponts et Chaussées—1908-VI. No. 3317 E + F. See also Washington, D. C., under WATER SUPPLY.

Artesian Waters.
The Brown Artesian Waters of Costilla County, Colo., their Relations to Certain Deposits of Natron or Soda, and What They Teach. William P. Headen. A study of a basin yielding brown waters, surrounded by a supply of colorless water. 4000 w. Am Jour of Sci—April, 1909. No. 3804 D.

Artesian Wells.
Artesian Waters of the Atlantic Coastal Plain. Myron L. Fuller. Illustrates and describes the geologic development, sources of artesian waters, their quality, temperature and related characteristics. 8000 w. Pro Am W-Wks Assn—1908. No. 5939 N.


The Progress of Artesian Well Work in Dry Countries. Editorial review of what has been done in later years, in the more arid regions of the earth, to provide water from underground supplies under pressure. 2500 w. Engng—Sept. 24, 1909. No. 8365 A.

Ashokan.

Progress on the Ashokan Reservoir. Information concerning the construction of this 127,000,000,000 gal. for the additional supply of New York City. 4500 w. Eng Rec—Sept. 4, 1909. No. 7538.

See also Aqueducts, and Reservoirs, under WATER SUPPLY.

Backwater.
New Methods in Backwater Computations. B. F. Groat. Explains the application of a new formula for stream flow to the problem, and also mechanical and graphical methods for ascertaining areas of cross-sections for various degrees of backwater. 2500 w. Minn Engr—Jan., 1909. No. 2730 C.

Barrages.
The Isna Barrage Across the Nile. Illustrated description of this important
CIVIL ENGINEERING

Civil Service Law

Irrigation work in Egypt. 2500 w. Sci Am—March 6, 1909. No. 2970.


The Esneh Barrage. Photographs, drawings and description of work in Egypt designed to hold up the low floods on the Nile. Plate. 3000 w. Engr, Lond.—Jan. 22, 1909. No. 2221 A.

Civil-Service Law.


Cofferdams.

See Concrete, under Construction.

Conduits.


Conservation.


WATER SUPPLY

Coomaradie.


Copenhagen.


Croton.


Dams.


The Principal Stresses and Planes in a Masonry Dam. Frank Harvey Hummel. Gives a determination of the stresses and principal planes in a dam of triangular section, showing in a diagram the variation of the stresses in magnitude and direction. 600 w. Inst of Civ Engrs—No. 3815. No. 8161 N.


Experimental Investigations of the Stresses in Masonry Dams Subjected to Water Pressure. Paper 3674, by Sir John
CIVIL ENGINEERING

Dams


A Sketch of the Recent Development of Movable Dams. Albert B. Cudебек. Outlines the important types giving a general idea of the present development. 1500 w. Cornell Civ Engr—March, 1909. No. 3201 C.

Needle Dam, Pleasanton Reclamation Project, California. James K. James. Outlines the aims of this project and gives an illustrated description of this movable dam, discussing the hydrostatic pressures when the dam is full. 3500 w. Cal Jour of Tech—Feb., 1909. No. 3301.


Fish Ways in Dams (Fischweise in Stauanlagen). Dr. H. Löschner. A practical discussion of their arrangement. Ills. 3300 w. Oest Wochenschr f d Oeff Bau- dienst—Nov. 14, 1908. No. 1182 D.


Concerning the Gatun Dam and Earth Dams in General. An illustrated explanation of conditions and construction details at Gatun, and a study of the principles of earth dam design. 5000 w. Eng News—April 1, 1909. No. 3761.


The Olive Bridge Dam Concrete Plant. Illustrated description of the plant installed for the construction of this dam for the Ashokan reservoir in the Catskill Mts. It will be one of the largest and highest masonry dams in the world. 2000 w. Eng Rec—April 3, 1909. No. 3691.

CIVIL ENGINEERING

Dams


The Ohio River Dam and Lock No. 37, Near Cincinnati, O. Illustrated detailed description of important engineering work in connection with the improvement of river navigation. 5000 w. Eng News—March 4, 1909. No. 2996.

The Core Wall in a River Wing Dam at Moline, Ill. Illustrates and describes the construction of a core wall to meet conditions quite out of the ordinary. 2000 w. Eng Rec—Feb. 6, 1909. No. 2307.


Construction of the Pathfinder Dam, North Platte Project, United States Reclamation Service. E. H. Baldwin. Illustrates and describes the construction of this masonry dam of the modified arch type. 2500 w. Eng Rec—Nov. 7, 1908. No. 136.


Hydraulic-Fill Dams and the Necoja Accident. Editorial on the recent slip of a portion of this dam near the City of Mexico, and the lesson it should teach. 1500 w. Eng Rec—July 3, 1909. No. 6171.

Accident to Necoja Dam No. 2. Describes this accident in Mexico, showing the causes that contributed and the steps proposed for the reconstruction and restoration. Ills. 2000 w. Engr, Lond—July 30, 1909. Serial, 1st part. No. 6988 A.


The Construction of Three Reservoir Dams in the Valley of the Ondaine (Note sur la Construction de trois Barrages-Réservoirs dans la Vallée de l’Ondaine). M. Reuss. The structures are of masonry. 10000 w. Ann des Ponts et Chausées—1908-VI. No. 3313 E + F.
CIVIL ENGINEERING

Discharge Coefficients


See also Concrete and Excavation, under CONSTRUCTION; Soil Testing, under MEASUREMENT; Barrages and Reservoirs, under WATER SUPPLY; Barge CANAL and Lock Gates, under WATERWAYS AND HARBOURS; and Hydro-Electric, under ELECTRICAL ENGINEERING, GENERATING STATIONS.

Discharge Coefficients.


Distillation.

Modern Plants for the Distillation of Water (I moderni Impianti distillatori d’Acqua). Gustavo Pincherle. Describes briefly the plant necessary, modern apparatus, etc. 3000 w. Monit Tech—Aug. 20, 1909. No. 7945 D.

Distribution.


WATER SUPPLY


The Distribution of the Waters of the Mology (La Distribution des Eaux du Mology). K. A. Breuer. Describes novel features in connection with the works for utilizing the waters of this small Swiss river. Ills. Serial, 1st part. 2300 w. Bul Tech d l Suisse Romande—June 25, 1909. No. 6541 D.

Ditches.


The Vaucouleurs Regulating Trench of the Marne-Saône Canal (Rigole d’Alimentation du Canal de la Marne à la Saône dite de Vaucouleurs). M.M. Suquet and Changey. Illustrated detailed description. 11500 w. Ann d Ponts et Chaussées—1909-IV. No. 5714 E + F.

See also Excavation, under CIVIL ENGINEERING, CONSTRUCTION.

Diverion Damages.


Dover, England.

The Dover Watershed and Water Supply. Henry Edward Stilgoe. Describes the physical features of this watershed with a view to ascertain where the largest supplies may be obtained. Plates. 5000 w. Inst of Civ Engrs—No. 3730. No. 884 N.

Filtration.


The Efficiency of the American Process of Water Filtration. James M. Caird. Illustrates and describes various plants,
explaining methods by which the waters are treated and the results. 1,4000 w. Pro Am W-Wks Assn—1908. No. 5943 N.

Some Results Obtained by the Application of Hypochlorite of Lime on Mechanical and Slow Sand Filters and Method of Controlling Coagulant and the Operation of the Ofifice Boxes. A. E. Walden. IIs. 1500 w. Am W-Wks Assn—June, 1909. No. 5009 N.


Mechanical Filters. Replies to inquiries relative to mechanical filtration as applied to water supplies. IIs. 1800 w. Can Engr—Aug. 27, 1909. No. 7407.

Notes on Certain Points in the Design of Large Filtration Plants. S. Bent Russell. Gives a brief outline of the component parts of a modern plant, with special attention to the washing of the filters, and notes on certain plants. 4500 w. Jour Assn of Engng Soes—June, 1909. No. 7860 C.


Sanitary Control of Filter Plants. Francis D. West. Deals with the operation of filter plants controlled by laboratory tests of the water delivered to consumers. Especially considers Philadelphia. 3000 w. Pro Engrs Club of Phila—April, 1909. No. 7116 D.


Operating Results and Costs, Torressdale Filtration Plant. Explains the methods of operation at this Philadelphia plant, the results obtained, and cost. 2500 w. Eng Rec—July 31, 1909. No. 6796.


Cincinnati’s Water Filtration Plant. Illustrated description of the plant that gives the city a pure, clean, water supply. 2500 w. Munic Jour & Engr—Nov 4, 1908. No. 83.

Electrically Operated Filter Valves at Cincinnati, Ohio. F. H. Stephenson. The methods used are illustrated and de-
CIVIL ENGINEERING

Filtration

WATER SUPPLY

Ground Waters


Rate Controller of the Cincinnati Filters. Illustrated description of this design, which is really a balanced valve for regulating the discharge. 2000 w. Eng Rec—June 19, 1909. No. 5622.


See also Contractors' Plants, under Construction; Sewage Purification, under Municipal; and Philadelphia, and Washington, D. C., under Water Supply.

Fire Protection.

San Francisco's Fire Service. David Paul. Describes a new and efficient service to be installed at an expense estimated at $5,250,000. 2200 w. Sci Am Sup—March 26, 1909. No. 3580.

Fire Protection for San Francisco. Gives details of the high-pressure system and of the 100 fire eisterns to provide against damage by earthquakes. Ills. 2500 w. Munic Jour & Engr—June 16, 1909. No. 5497.


Insurance Rates and the Water Service. Frank A. Barbour. Describes improve-
ments in supply for fire service that led to reduction in insurance rates. Discussion. 4500 w. Jour N Eng W-Wks Assn—Sept., 1908. No. 665 F.


Fish Ways.

See Dams, under Water Supply.

Flume Gaging.


Flumes.

Flow of Water in Flumes or Lauanders. R. E. Neale. Notes applying not only to natural water-courses, but to artificial flumes. 900 w. Prac Engr—April 30, 1909. No. 4606 A.

Government Control.


See also Sanitation, under Municipal.

Ground Waters.


CIVIL ENGINEERING

Ground Waters


The Discovery of Subterranean Waters (Descubrimiento de Aguas subterranas). Describes an instrument invented by P. Garcia Muñoz. 3000 w. Energia Elec—Sept. 10, 1909. No. 8645 D.


High Pressure.


See also Fire Protection, under WATER SUPPLY.

Hydrostatics.


Illinois.


The Mineral Content of Illinois Waters. Edward Bartow, J. A. Udden, S. W. Parr, and George T. Palmer. Deals with the distribution, geographical classification, chemical properties, analyses, etc. 38000 w. Bul Univ of Ill—Sept. 15, 1908. No. 8147 N.

Intakes.

The Intake of the Water Works at Algiers, Louisiana. Illustrated description of an intake designed specially to meet difficult local conditions. 1500 w. Eng Rec—July 3, 1909. No. 6175.


See also Pipe Lines, under WATER SUPPLY; and Turbine Plants, under MECHANICAL ENGINEERING, HYDRAULIC MACHINERY.

Irrigation.

The Relations of Irrigation to Navigation. F. W. Hanna. Considers that the irrigation canals in arid regions are not likely to ever be used for navigation, but points out their beneficial influence by increasing production of agricultural products, preventing floods, etc. 1200 w. Eng News—March 25, 1909. No. 3491.

National Irrigation and Flood Control. Arthur P. Davis. Outlines the work of
CIVIL ENGINEERING

Irrigation

the Reclamation Service, discussing results thus far. 1200 w. Eng Rec—Nov. 14, 1908. No. 254.


Watering the Uncompahgre Valley. Arthur Chapman. Illustrated account of this nearly completed irrigation project, which will reclaim more than 150,000 acres of land. 2500 w. Am Rev of Revs—Aug., 1909. No. 7019 C.

The Redemption of the Great Valley of California. A. D. Foote. Outlines a plan of basin irrigation and auxiliary works, similar to those used in the valley of the Nile, to protect from floods and store water for irrigation. Map. 6800 w. Pro Am Soc of Civ Engrs—Sept., 1909. No. 8180 E.


Irrigation in South-Eastern Australia. Describes the conditions and the scheme of water regulation. 2500 w. Engr, Lond—Nov. 13, 1908. No. 449 A.


CIVIL ENGINEERING

Italy


See also Tunnels, under CONSTRUCTION; Aqueducts, Barrages, Meters, and Seepage, under WATER SUPPLY; Canals, under WATERWAYS and HARBORS; Hydro-Electric under ELECTRICAL ENGINEERING, GENERATING STATIONS; and Pumping Plants, under MECHANICAL ENGINEERING, HYDRAULIC MACHINERY.

Water Supply Projects for Apulia (Die Wasserversorgungs-Anlage für Apulien). Dr. Brandau. An outline of a very large water-supply scheme for this district in Italy. Serial, 1st part. 1800 w. Deutsche Bau—April 10, 1909. No. 4874 B.

London


See also High Pressure, under WATER SUPPLY.

Long Island.


Magdeburg.

The Elbe Water of Magdeburg. Information from a recent paper by Dr. Otto Pfeiffer, before the Verein Deutscher Ingenieure, concerning the conditions, sources of contamination, etc. 2500 w. Engng—Feb. 19, 1909. No. 2896 A.

Meters.


Practical Workings of Detector Meters. R. J. Thomas. Explains the advantages of such meters, especially where used on services intended for fire protection only. Discussion, with notes on Private Fire Protection by D. R. Gwinn. 7500 w. Pro Am W-Wks Assn—1908. No. 5930 N.

"Battery" Arrangement of Water Meters. George E. Booker. Illustrated description, with discussion. 1500 w. Pro Am W-Wks Assn—1908. No. 5983 N.


The Sale of Potable Waters in Cities (La Vente de l'Eau potable dans les Villes). P. Juppont. Discusses the economics of water supply, the use of meters and the efficiency of the various types. 5500 w. Génie Civil—Jan. 23, 1909. No. 3044 D.

See also Condenser Meters, under MECHANICAL ENGINEERING, STEAM ENGINEERING.

Meter Testing.

Discussion of the Probable Errors Due to the Apparatus and Gauges Used for the Commercial Test of Meters. Nicholas S. Hill, Jr. 14800 w. Pro Am W-Wks Assn—1908. No. 5932 N.

Michigan City, Ind.


Municipal Ownership.


Newark, O.

History of the Water Works Question at Newark, Ohio. H. C. Hodgkins. A review, with general discussion. 3500 w. Pro Am W-Wks Assn—1908. No. 5981 N.
NEW JERSEY

WATER SUPPLY

New Jersey.


Newton, Mass.


New York City.

See Ashokan, Croton, Dams, and Reservoirs, under Water Supply.

New York State.


See also Water Powers, under Waterways and Harbors.

Nitrogen.

The Significance of Nitrogen in Its Various Forms in Water Supply. F. E. Hale. Aims to emphasize the lack of sanitary significance in the presence of high free ammonia, or nitrate in ground supplies. Discussion. 6000 w. Pro Am W-Wks Assn—1908. No. 5940 N.

Orifices.

See Discharge Coefficients, under Water Supply.

Paris.


Pennsylvania.

The Quality of Some Pennsylvania Waters. R. B. Dole. Read before the Eastern Ice Assn. Presents results of recent investigations into the mineral composition of the large rivers. 2500 w. Ice & Refrig—Dec., 1908. No. 956 C.

Philadelphia.

The Water Supply of Philadelphia, with Special Reference to the Filtration Works Now Under Construction. John C. Trautwine, Jr. Describes conditions before the works were begun, discussing the plan adopted. 8000 w. Jour Fr Inst—Nov., 1908. No. 350 D.


See also Filtration, under Water Supply.

Pipe Corrosion.


Pipe Cleaning.

Electrolysis of Water Mains in Newark, N. J. From the report of William E. Foss, appointed to investigate the conditions. 2000 w. Eng Rec—Nov. 14, 1908. No. 251.


Note on the Action of Water on Galvanized Iron. W. F. Monfort. Considers the action of a partially softened water upon the zinc coating of galvanized iron pipes as affecting their durability. Ills. 1500 w. Pro Am W-Wks Assn—1908. No. 5945 N.


The Rusting of Iron, and the Rochester, N. Y., Steel Conduit. This present article reviews recent researches introductory to a discussion of the practical side of the question. 3000 w. Engng—Aug. 27, 1909. Serial. 1st part. No. 7652 A.
Pipe Electrolysis


Pipe Flow.


See also Drainage, under MUNICIPAL.

Pipe Incrustation.

Character and Composition of the Incrustation from Discharge Pipe at Quincy, Illinois. Edward Bartow. Gives analysis of the incrustation, and also of the water. General discussion. 6000 w. Pro Am W-Wks Assn—1908. No. 5934 N.

Pipe Joints.


Pipe Laying.

Cost of Laying Water Pipes. Gives cost in Boston and other Massachusetts cities, with analyses and comparisons of figures reduced to a common basis. 1800 w. Munic Jour & Engr—Sept. 1, 1909. No. 7510.

Pipe Lines.


Perturbations Produced by the Closing of Gate Valves in Water Pipe Lines (Perturbations produites par la Fermeture des Robinets-Vannes sur le Fonctionne-ment d'une Distribution d'Eau). Henry Dide. Theoretical and mathematical. Ills. 4000 w. Génie Civil—April 24, 1909. No. 4842 D.


See also Ditches, under WATER SUPPLY; Drainage, under MUNICIPAL; and Pipe Lines, under MECHANICAL ENGINEERING, HYDRAULIC MACHINERY.

Pipe Location.


Pipes.


Pipe Specifications


The Design of Reinforced-Concrete Pipes to Withstand Compression and Bending (Calcul des tuyaux en Béton armé soumis à des Efforts de Compression et de Flexion). P. Caufourier. Mathematical. 2600 w. Génie Civil—April 3, 1909. No. 4836 D.


Pipe Specifications


Pipe Strength.

The Collapse of Tubes Under External Pressure. S. E. Slocum. A study of recent experiments. 3500 w. Engng—Jan. 8, 1909. No. 1818 A. See also Steam Pipes, under MECHANICAL ENGINEERING, STEAM ENGINEERING.

Pipe Trenches.

See Excavation, under CONSTRUCTION; and Sewer Trenches, under MUNICIPAL.

Pollution.


The Sanitary Condition of the Southern End of Lake Michigan. J. Herbert Brewster. A study of the pollution of Lake Michigan and the condition of public water supplies, with recommendations for remedying the situation. 7000 w.

WATER SUPPLY

Diagrams. Am W-Wks Assn—June, 1909. No. 5004 N. See also Cesspools, under MUNICIPAL.

Port Elizabeth.

I. Survey for Port Elizabeth Water-Supply. Charles Dimond Horatio Braine. II. Port Elizabeth Water-Supply. William Ingham. Two illustrated papers giving a history and description of the water works. 9500 w. Inst of Civ Engrs—No. 3747 & No. 3756. No. 3203 N.

Pumping.

See Pumping Engines, and Pumping Plants, under MECHANICAL ENGINEERING, HYDRAULIC MACHINERY.

Purification.


The Storage of Raw River Water. Information from the third report of Dr. A. C. Houston to the Metropolitan Water Board, giving results. 1800 w. Engr, Lond—April 9, 1909. No. 4038 A.


Water Softening or Purification and Its Saving. M. Miller. Considers methods, results, costs, etc. Ills. 3500 w. Am W-Wks Assn—June, 1909. No. 5910 N.


The Cost of Clearing Water in Settling Basins. S. Bent Russell. From a paper before the Cent. States W.-Wks. Assn. Considers four types of settling reservoirs,
CIVIL ENGINEERING

Purification

WATER SUPPLY


An Ozone Purification Plant at Chartres (Usine de Clarification et d'Ozonation des Eaux de la Ville de Chartres). Augustin Witzig. Illustrated description of a plant serving a city of 23,000 inhabitants. 1000 w. Génie Civil—Nov. 28, 1908. No. 1120 D.


Description of Methods of Operation of the Sterilization Plant of the Jersey City Water Supply Company at Boonton, N. J., and Discussion of Results of Analysis of Raw and Treated Water, with notes on the Cost of the Treatment. George A. Johnson. 3000 w. Am W-Wks Assn—June, 1909. No. 5920 N.


The Results of an Examination of the Water Purification Plant at Marietta, Ohio. Philip Burgess gives a description of the plant and its operation, with report of its examination and the recommendations. 4000 w. Eng Rec—Dec. 19, 1908. No. 1058.


The Water Purification Plant at Toledo. William G. Clark. Read before the Ohio Soc. of Mech., Elec. & Steam Engrs. Describes methods used to purify the river water. 3000 w. Eng Rec—Nov. 28, 1908. No. 695.


Building for the Future. Charles B. Starkey. Illustrated description of the water purification and drainage in the
CIVIL ENGINEERING

Purification


The Forbes Water-Sterilizer. Drawings and description. 1600 w. Engng—March 5, 1909. No. 3173 A.


See also Concrete, under Construction; Sewage Disposal, under Municipal; and Filtration and Pipe Lines, under Water Supply.

WATER SUPPLY

Rates.


Water Rates Charged in 375 Cities. D. R. Gwinn. Gives a statement of rates, with the object of showing that the average report gives no accurate information in regard to cost of water furnished. Discussion. 9000 w. Pro Am W-Wks Assn—1908. No. 5935 N.


Reservoirs.


See also Meters, and Water Works, under Water Supply.

Reservoirs.


The Construction of the Croton Falls Reservoir. Describes new features and methods developed in the course of recent work on this great reservoir for the supply of New York City. 4500 w. Eng Rec—Dec. 12, 1908. No. 961.


CIVIL ENGINEERING

Review of 1908

Two Accidents to Reinforced Concrete Reservoirs. An illustrated account of accidents to reservoirs at Guthrie, and Oklahoma City, and the method of repairing. 1000 w. Eng Rec—June 26, 1909. No. 5998.

The Outlet Control of Little Bear Valley Reservoir. F. E. Trask. Illustrated description of this feature of an important project in California. 1500 w. Pro Am Soc of Civ Engrs—Sept., 1909. No. 8185 E.

See also Failures, under Construction; and Ashokan and Croton, under Water Supply.

Review of 1908.


Run-off.


Roman Aqueducts.

Gage Measurements of Service Connections of the Ancient Roman Water-Works. M. L. Holman. Testimony to the arithmetical ability and the integrity of the records of the ancient hydraulic engineers. 1500 w. Jour Assn of Engng Soc—June, 1909. No. 7807 C.

Salt Lake City.


San Francisco.


Sedimentation Basins.


Seepage.


Selection.


Siphons.


Sluice Gates.


Softening.


See also Locomotive Feed Water, under RAILWAY ENGINEERING, Motive Power and Equipment.

Springfield, Mass.

WATER SUPPLY

Washington, D. C.


Tunnels.

See same title, under CONSTRUCTION.

Typhoid.

A Notable Typhoid Epidemic at Mankato, Minn. F. H. Bass. An account of an epidemic where the artesian water supply was supposed to make contamination impossible. Maps. 1200 w. Eng News—Feb. 11, 1909. No. 2396.


See also Washington, D. C., under WATER SUPPLY.
CIVIL ENGINEERING

Water Lift

Water Lift

Supplying a High-Level Reservoir by the Discharge of a Reservoir at a Lower Level (Alimentation d’un Réservoir surélevé par la Conduite de Refoulement d’un Réservoir inférieur). P. Aristide Bergès. Describes an arrangement by which water is raised by the energy in water at a lower level but without loss. Ills. 2000 w. Génie Civil—June 26, 1909. No. 6550 D.

Water Meters.


See also Meters, under WATER SUPPLY.

Waterworks.


Water Towers.


See also Tanks, under WATER SUPPLY.

Water Works.


Notes on Newton, N. J., Water Works Construction and Litigation. Louis L. Tribus. Illustrated detailed description of the plant, and account of suits for
CIVIL ENGINEERING

Water-Works Valuation

WATERWAYS AND HARBORS

Antwerp


Rolling Weir and Hydro-Electric Plant of the Lauffen Portland Cement Works at Neckarwestheim, Württemberg (Das Walzenwehr und die Wasserkraftanlage des Württembergischen Portlandzementwerkes Lauffen bei Neckarwestheim am Neckarl), Herr Nauffer. Gives some details of all the weirs of this type in existence and describes this special installation. Ills. 4400 w. Zeitschr d Ver Deutscher Ing—Nov. 21, 1908. No. 1194 D.


See also Turbine Plants, under MECHANICAL ENGINEERING, HYDRAULIC MACHINERY.

Well Drillers.


Wells.

A Few Examples of Double Wells. F. G. Clapp. Describes wells where two distinct types of water can be obtained from one well; one well gives fresh and also salt water; another fresh and sulphur water. 1500 w. Eng Rec—Feb. 20, 1909. No. 2567.

Methods of Deep Well Drilling in the Gulf of Mexico Costal Plain. Illustrates and describes a number of methods used. 1500 w. Engng-Con—April 7, 1909. No. 3871.

See also Newton, Mass., under WATER SUPPLY.

Youngstown, O.

An Industrial Water Supply for the Youngstown District. Explains conditions and illustrates and describes the project carried out which will impound two billion gallons in three lakes, giving a head of 160 feet. 1800 w. Ir Trd Rev—Dec. 17, 1908. No. 1037.

WATERWAYS AND HARBORS

Antwerp


Baltimore

WATERWAYS AND HARBORS


See also Piers, under WATERWAYS AND HARBORS.

Barcelona.

The Port of Barcelona (Le Port de Barcelone). M. Batard Razelière. Discusses its status, works in progress and projected, administration, facilities for handling freight, etc. Ills. 26000 w. Ann des Ponts et Chauss—1908-IV. No. 1308 E + F.

Barge Canal.


Construction Work on the New York State Barge Canal. Illustrated description of work on a number of contracts, the dredging and excavating equipment, methods, dams, locks, etc. 19600 w. Eng Rec—April 3, 1900. No. 3712.

The Excavating and Dredging Outfit on the Oneida River Section, Contract No. 12, of the New York State Barge Canal. Extract from the Barge Canal March Bulletin, 1909. Describes the conditions and the equipment for carrying out the work. 4000 w.—Eng News—July 29, 1909. No. 6768.

Breakwaters.

See Sea Walls, under WATERWAYS AND HARBORS.

Bridge Piers.


Buoys.


See also Lightships, under MARINE AND NAVAL ENGINEERING.

Caissons.


See also same title, under CONSTRUCTION.

Calumet River.

See Great Lakes, under WATERWAYS AND HARBORS.

Canada.


Canal Haulage.

See same title, under STREET AND ELECTRIC RAILWAYS.

Canals.


Progress in Inland Navigation. Editorial on conditions and work in progress in different countries. 1800 w. Engng—May 7, 1909. No. 4727 A.


Abandoned Canals of the State of New York. Ely Van de Warker. An illustrated review, discussing the mistake of
Canals

their abandonment. 2500 w. Pop Sci M—Sept., 1909. No. 7783 C.


The Cape Cod Ship Canal. Brief illustrated account of this canal now under construction, between Barnstable Bay and Buzzard’s Bay. 1500 w. Eng Rec—July 24, 1909. No. 6645.


The Proposed National Ship Canal in Scotland. Maps with descriptive account of a proposed ship canal from the North Sea to the Atlantic sea-board. 3000 w. Engng—April 23, 1909. No. 4463 A.


Repair of the Chazilly Conduit of the Bourgogne Canal with Reinforced Concrete (Sur la Réfection de la Rigole de Chazilly du Canal de Bourgogne au Moyen de Chapes en Béton Armé). M. Hégly. Illustrated description of a reinforced-concrete lining applied to a trench supplying water to the Chazilly reservoir. 3000 w. Ann d Ponc ts et Chaussées—1908-III. No. 503 E + F.


See also Excavation, under Construction; Aqueducts, under Water Supply; Barge Canal and Panama Canal, under Waterways and Harbors; and United States, under RAILWAY ENGINEERING, MISCELLANY.

Chicago


Cleveland, O.

Recent Improvements to the Harbor at Cleveland, Ohio. Illustrated description of breakwater extensions, and changes, channel deepening, and other important changes. 1500 w. Eng Rec—Jan. 16, 1909. No. 1766.

Coast Erosion.


Coast Protection.

The Execution of Coast Protection Works in Reinforced Concrete (Die Ausführung von Seesenkwerken aus Eisen-
CIVIL ENGINEERING

WATERWAYS AND HARBORS

Cofferdams


The Black Rock Lock Cofferdam. Illustrates and describes the construction at Buffalo, N. Y., of an unbraced steel and puddle Cofferdam in which a concrete ship lock will be constructed. 2200 w. Eng Rec—April 3, 1909. No. 3594.

Colorado River.


Costa Rica.

See same title, under RAILWAY ENGINEERING, MISCELLANY.

Detroit River.


Progress on the Improvement of the Detroit River. Describes the work of increasing the channel depth, the methods employed, etc. 5700 w. Eng Rec—April 3, 1909. No. 3703.

Dikes.


Diving.


See also Fire Protection, under WATERWAYS AND HARBORS.

Docks

Diving Bells.


Docks.


A Structural-Steel Ore Dock at Two Harbors, Minn. Illustrated detailed description of a 5000-ton ore dock, the first of its kind to be erected in the United States. 2200 w. Eng Rec—Dec. 5, 1908. No. 831.

A Large Coal Dock at Duluth. Illustrated description of dock and equipment for unloading from vessels and delivering to storage and cars the fuel supply of the D., M. & N. Ry. and the numerous large iron-ore, mines operated along the line. 3500 w. Eng Rec—Oct. 23, 1909. No. 8701.

A Heavy Concrete Dock on the Cuyahoga River, Cleveland. Explains conditions and illustrates and describes the dock. 1500 w. Eng Rec—April 3, 1909. No. 3711.

The Key Harbor Ore Docks of the Canadian Northern Railway. E. W. Oliver. Illustrates and describes the ore dock, a conveyor trestle and an unloading trestle. 1200 w. Eng Rec—March 20, 1909. No. 3275.


CIVIL ENGINEERING

Dock Yards


Dockyards.

See Shipbuilding, under MARINE AND NAVAL ENGINEERING.

Dover.


Dredges.

The New Jomini River Dredge (Nouvelle Drague de Rivière Système N. Jomini). M. Lidy. Description of a screw device for levelling river bottoms, which is turned by the force of the current. Ills. 3500 w. Ann. d' Ponts et Chaussées—1908-VI. No. 3318 E + F.

See also same title, under MARINE AND NAVAL ENGINEERING.

Dredging.

Methods and Costs of Dredging the St. Lawrence River. Describes the work and the outfit used, the methods of dredging, and gives itemized cost. 5000 w. Engng-Con—Nov. 4, 1908. No. 241.

Bucket Dredging and Pump Sluicing. H. Herman. Considers their applicability and costs. 2000 w. Aust Min Stand—Nov. 18, 1908. No. 1066 B.


Rock Removal in Hell Gate, New York City. Describes present conditions and the work in progress for the improvement of this dangerous channel. Ills. 4000 w. Eng Rec—Aug. 21, 1909. No. 7307.


Dredging and the Removal of Submarine Rock at Malta. (Abridged.) Arthur Langtry Bell. Describes the rock-breaking appliances, dredging craft, etc., used in deepening and extending the berthing area for warships. Ills. 4500 w. Inst of Civ Engrs—No. 3762. No. 3206 N.

See, also Barge Canal, and Rangoon, under WATERWAYS AND HARBORS; and Dredges, under MARINE AND NAVAL ENGINEERING.

Dry Docks.


Floating or Stationary Dry Docks (Schwimmdock oder Trockendock). Herr Thalenhorst. A discussion of their relative advantages in various situations. Ills. 3000 w. Ztschr d Ver Deutscher Ing—March 27, 1909. No. 4298 D.

A 6000-Ton Floating Drydock. William T. Donnelly. Illustrated description of a recently completed pontoon floating drydock having a number of new features. 3000 w. Int Marine Engng—Aug., 1909. No. 7118 C.

The Great Drydock at Pearl Harbor, Hawaii. Elmer Murphy. Describes this drydock, which is the largest ever constructed by the U. S. Navy Department. 1000 w. Sci Am—Feb. 6, 1909. No. 2283.


See also same title, under ELECTRICAL ENGINEERING, POWER APPLICATIONS.

Estuary Channels.

Estuary Channels and Their Treatment. Bryson Cunningham. Describes the ade-
CIVIL ENGINEERING

Famagusta

quate maintenance of these approach channels to meet the requirements of modern commerce. Ills. 4500 w. Engng—Oct. 30, 1908. Serial. 1st part. No. 189 A.

Famagusta.

Famagusta Harbors, Cyprus. George Hobbs. Illustrated description of recent work for the improvement of this ancient port. 3000 w. Inst of Civ Engrs—No. 3782. No. 8160 N.

Ferry Houses.

The Municipal Ferry House Substructure, New York. Illustrates and describes the fireproof steel structure at Battery Park which is to accommodate all the municipal ferries located at this point. 4000 w. Eng Rec—Nov. 7, 1908. No. 143.


Finland.

See same title, under RAILWAY ENGINEERING, MISCELLANY.

Flood Prevention.

See Irrigation, under WATER SUPPLY.

Flood Protection.


Floods.

The Floods of the Mississippi Delta; Their Causes, and Suggestions as to Their Control. William D. Pickett. 7800 w. Pro Am Soc of Civ Engrs—Nov., 1908. No. 647 E.


France.


French Commercial Harbors (Nos Ports de Commerce). C. Boutilier. A discussion of their condition, improvements necessary and the means whereby they can be realized. 7000 w. Tech Mod—June, 1909. No. 6537 D.

Frankfort-on-Main.


Fremantle.


French West Africa.

Harbors and Rivers of French West Africa (Les Ports et les Fleuves de l'Afrique occidentale Française). Illus—
Great Lakes

Trated description of harbors and navigable waterways and a discussion of commercial possibilities. 9000 w. Rev Gen des Sci—Dec. 15, 1908. No. 1916 D.

Great Lakes.


The Effect of the Proposed Calumet Canal on the Levels of the Great Lakes. Reports the testimony given in the case before the U. S. Courts in regard to a proposed canal which will reverse the flow of the Calumet River and so lower the level of Lake Michigan. 2500 w. Eng News—May 27, 1909. No. 5019.

Georgian Bay Canal.

The Georgian Bay Ship Canal. J. G. G. Kerry. Reviews the history of this project and gives an outline of the projected route. 4000 w. Engineering Magazine—Jan., 1909. No. 1326 B.


Great Britain.


Harbor Pollution.

The Discharge of Sewage into Tidal Waters. George A. Soper. Discusses the sanitary protection of tidal harbors. 6000 w. Sch of Mines Qr—April, 1909. No. 5900 D.

See also Sewage Disposal, under Municipal.

85

Harbors.


Modern Ships and Harbor Accommodations (Navires et Ports d'Aujourd'hui). Robert Hecker. A description of measures taken in some European ports, including Antwerp, Rotterdam, Havre, Brmerhaven, Southampton and Bremen, to insure the access of the largest of modern ships. Ills. 15000 w. Ann d Ponts et Chaussées—1909-III. No. 7212 E + F.

Hamburg, Antwerp and Other European Harbors (Los Puertos de Hamburgo, Amberes y varios otros de Europa). Review of a publication by the Brazilian Minister of Public Works describing large European harbors and discussing the application of their principles of construction to the port of Buenos Ayres. Ills. Serial. 1st part. 4000 w. Ingeniería—Nov. 15, 1908. No. 1930 D.

Hunigary.


Ice Jama.

Extraordinary Ice Jams at Niagara Falls. An illustrated account of the unusual conditions in February and the blasting to break the glacier. Plate. 2800 w. Eng News—April 29, 1909. No. 4355.

Italy.

The Development of Internal Navigation in Italy in Relation to the Operation of Railways and Tramways and to National Economy (Considerazioni intorno agli Studi ed ai Mezzi per Sviluppare le Navigazione interna in Relazione coll' Esercizio delle Ferrovie e Tramvie e il
Jetties

Completamento dei Mezzi di Trasporto nell’Interesse dell’Economia Nazionale. Serial. 1st part. 7000 w. Ing Ferro—July 1, 1900. No. 7248 D.

Jetties.


Kanawha River.

A Defence of the Present System of Improvements on the Kanawha River. F. W. Altstaetter. Gives results of a study of this watershed, showing that reservoir regulation would have been very costly and accomplished nothing more than the existing improvements. Editorial. 7500 w. Eng Rec—Feb. 13, 1900. No. 2447.

Lake Ontario.


Levees.


Lighthouses.

The Guiding Lights of Our Coasts. C. H. Claudy. Gives a diagram showing the relative intensities of lights of different orders and different characters, with other information regarding lamps and lighthouses. Ills. 1000 w. Sci Am—Nov. 28, 1908. No. 473.


An Open-Sea Ferro-Concrete Lighthouse. Illustrated description of a recently completed structure in the Straits of Malacca, and of the methods and difficulties of construction. 1000 w. Prac Engr—Nov. 6, 1908. No. 303 A.

Locks


See also Buos, under WATERWAYS AND HARBORES.

Liverpool.

Barriers to International Trade. Lewis M. Haupt. An illustrated description of harbor problems at the port of Liverpool is given. A second paper will discuss the harbor of New York. 4000 w. Cassier’s Mag—April, 1909. Serial. 1st part. No. 3639 B.

Lock Gates.

The Design of the Lock Gates and of an Emergency Dam for the Panama Canal. Information from the recent report of the Isthmian Canal Commission in regard to the design of these lock gates and the dam. 1000 w. Eng News—Dec. 31, 1908. No. 1408.


Locks.

The Locks of the Panama Canal. An illustrated article reporting the progress of lock excavation and describing the lock structures. 5000 w. Eng News—July 15, 1909. No. 6382.


The Lock in the Mississippi River at Moline, Ill. Illustrated description of the lock and its construction, explaining con-
CIVIL ENGINEERING

Locks

WATERWAYS AND HARBORS


Electrical Installations at the Locks of Port-à-l'Anglais (Installations électriques aux Ecluses le Port-à-l'Anglais). M. Imbs. Detailed description of the electrically operated lock gates, sluices, etc. Ills. Plates. 7200 w. Ann d'Pots et Chaussées—1909-III. No. 7211 E + F.

The Floride Lock at Havre (Note sur les Travaux de Construction de l'Ecluse à Sas de la Floride au Port du Havre). M. Guiffart. Illustrated detailed description of the construction of this important part of the harbor-improvement work. 30000 w. Ann d'Pots et Chaussées—1908-V. No. 2608 E + F.


Accident at Sault Ste. Marie. Illustrated description of the recent accident in which the lock gates were carried away. 1500 w. Marine Rev—July, 1909. No. 6322.


See also Dams, under WATER SUPPLY; Barge Canal, and Panama Canal, under WATERWAYS AND HARBORS; and Cranes, under MECHANICAL ENGINEERING, TRANSPORTING AND CONVEYING.

Manitowoc, Wis.
The Improvement of Manitowoc Harbor, Wisconsin. Illustrated description of reconstruction work to meet modern conditions. Cribs from the old works are removed to the new. 2500 w. Eng Rec—Jan. 23, 1909. No. 2024.

Milan.
A Project for a New Port at Milan (Il Progetto del nuovo Porto di Milano). A discussion of the project, the difficulties and problems to be solved. Ills. 4000 w. Monit Tech—Dec. 30, 1908. No. 2649 D.

Mississippi River.
Improvement of the Upper Mississippi River. C. McD. Townsend. The stretch of river from St. Paul to Prescott is described to show the method adopted, and such other parts as illustrate some variation from the general method. Ills. Discussion. 1800 w. Jour W Soc of Engrs—Feb., 1909. No. 3268 D.

Missouri River.
The Missouri River and Its Bridges. J. Y. Oleson. Describes the characteristics of this river, and gives diagrams and dimensions of the 31 bridges crossing it. 1200 w. Eng News—April 20, 1909. No. 4358.

New York.

See also Liverpool, under WATERWAYS AND HARBORS.

Niagara River.


The Permanent Improvement of the Ohio River. P. S. Bond. An account of the project undertaken by the United States Government, including a system of locks and movable dams designed to maintain a least depth of 9 feet. 5500 w. Eng Rec—Dec. 25, 1908. Serial. 1st part. No. 1244.

See also Dams, under WATER SUPPLY.

Panama Canal.


The Situation at Panama. Forbes Lindsay. A review of the plan and conditions, sanitation, labor, etc. Ills. 3500 w. Am Rev of Rev—April, 1909. No. 3810 C.

The Commercial Prospects of the Panama Canal. G. A. Ballard. An outline of its commercial prospects leading to the conclusion that it is unlikely to prove a commercial success. 5500 w. Contempory Rev—Dec., 1908. No. 1297 D.


The Isthmian Canal. Lieut.-Col. George W. Goethals. From a paper read before the Mfrs. Assn. of Chicago. Explains changes made in the original project for a lock-canal, describing conditions and the progress of the work and defending the type adopted. 4000 w. Eng News—March 18, 1909. No. 3245.

The Meaning of the Panama Canal to the South. John Barrett. Discusses the effect on South American trade and the importance of preparing by acquiring reliable information concerning these Latin-American countries. 3000 w. Mfrs Rec—Jan. 7, 1909. (Special No.) No. 1558 C.


Some Further Evidence Respecting the Best Type of Canal for Panama. Presents some of the evidence which supports the lock canal plan. Ills. 3500 w. Eng News—March 4, 1909. No. 2990.

Superiority of Lock to Sea-Level Canal. Gives comparative diagrams showing the physical characteristics of the two types of canal, the quantities, costs, etc. 1600 w. Sci Am—March 27, 1909. No. 3521.

The Panama Canal. Editorial on the agitation in regard to the lock-type of canal. 1800 w. Engng—March 19, 1909. No. 3621 A.

The Type of the Panama Canal. C. E. Grunsky. An illustrated review of the proceedings that led to the selection of the lock-type. 9000 w. Pop Sci M—May, 1909. No. 4405 C.

The Foundations for the Gatun Locks. Review of a report by Major Chester Harding, giving information based on re-
CIVIL ENGINEERING

Panama Canal

WATERWAYS AND HARBORS


Analysis Showing that the Panama Canal is Certain to Cost at Least $210,000,000, or 50 Per Cent. More Than Originally Estimated. Editorial. 2500 w. Engng-Con—Dec. 2, 1908. No. 802.


The Panama Canal. J. F. Springer. An illustrated account of the work in progress, the machinery used, and the construction details. 5000 w. Ir Age—July 1, 1909. Serial, 1st part. No. 6660.

The Panama, a Machine Made Canal. Illustrates and describes machines being used, comparing the results with hand labor. 4000 w. Am Mach—Vol 32. No. 28. No. 6325.

Construction of the Obispo Diversion in Connection with the Panama Canal Work. Illustrated description of the work, with topographical map and profile. 3000 w. Eng Rec—June 26, 1909. No. 5996.


Three Years in the Canal Zone. Dr. Summer Coolidge. An enthusiastic account of what has been accomplished. Also discussion. 7500 w. Jour Assn of Engng Soc's—June, 1909. No. 7808 C.


The Present Aspects of the Panama Canal from the Tourist's Point of View. William Tatham. Explains present conditions, and the advantages of the plan adopted. 4500 w. Jour Fr Inst—Sept., 1909. No. 7685 D.

Water Supply for the Lock Canal at Panama. Julio F. Sorzano. A discussion of whether the 40 ft. draft can be maintained at all times in the canal under the conditions which are possible and probable in the locality. 9800 w. Pro Am Soc of Civ Engrs—Oct., 1909. No. 8845 E.

See Also Contractors' Plants, under CONSTRUCTION; Dams, under WATER SUPPLY; and Locks and Lock Gates, under WATERWAYS AND HARBORS; and Cranes, under MECHANICAL ENGINEERING, TRANSPORTING AND CONVEYING.

Pará.


Piers.


The Holland America Line Pier, Hoboken, N. J. The pier shed framework and fire wall and typical details of the structure are described and illustrated. 2500 w. Eng Rec—Oct. 16, 1909. No. 8595.


Piling.

See same title, under CONSTRUCTION.
Pollution


See also Harbor Pollution, under WATERWAYS AND HARBORES; and Sewage Disposal, under MUNICIPAL.

Portland, Ore.


Rangoon.

New Port Works at Rangoon. Illustrates and describes extensive improvements in progress, and special features in the design of the dredger pipe line. 2000 w. Engr, Lond—July 16, 1909. Serial, 1st part. No. 6691 A.

Review of 1908.

Harbors and Waterways, 1908. A review of progress during the past year. 3500 w. Engr, Lond—Jan. 1, 1908. No. 1711 A.

Rhône.


River Beds.


River Improvement.


The Progress of River Improvements in the Vicinity of Pittsburg. J. W. Arras. An illustrated account of work in the


The Improvement of the Southwest Pass at the Mouth of the Mississippi River. Illustrated description of the jetties built to increase the navigable depth. 3500 w. Eng Rec—April 3, 1909. No. 3713.

See also Kanawha River, under WATER SUPPLY; and Detroit River, under WATERWAYS AND HARBORES.

River Pollution.

River Pollution: Its Ethics, Aesthetics and Hygiene. A discussion at the Royal Sanitary Institute, opened by Mr. Scott Moncrieff. 6000 w. Surveyor—April 16, 1909. No. 4198 A.

River Regulation.


River Control by Wire Net-Work. Francis Philip Anderson. Explains conditions on the Bengal Doaras railway, describing this wire network device and its uses in the endeavor to control the streams bridged. Ills. 4000 w. Inst of Civ Engrs—No. 3748. No. 2752 N.


The Hydrological Importance of Forests (Die hydrologische Bedeutung des Waldes). Discusses forests in their relation to the control and conservation of surface waters. 3300 w. Oest Wochenschr f d Oeffent Baudienst—Feb. 27, 1909. No. 3551 D.

CIVIL ENGINEERING

Rock Removal

WATERWAYS AND HARBORS

Shore Protection


See also Ohio River, under WATERWAYS AND HARBORS.

Rock Removal.


Removal of Submarine Rock at the Entrance to Port Phillip, Victoria. Charles William Maclean. Describes work to provide adequate depth of water for deep-draught vessels entering or leaving the Port of Melbourne. (Abstract) Ills. Inst of Civ Engrs—No. 3545. No. 887 N.

See also Dredging, under WATERWAYS AND HARBORS.

Ruhrort.


St. Lawrence.

Improvements in the Navigation of the St. Lawrence. William P. Anderson. Read at Winnipeg meeting of the British Assn. Describes details of work to fit the river for the requirements of modern shipping. 3500 w. Engng—Sept. 17, 1909. No. 8129 A.

Saint Nazaire.

The New Approach and New Harbor Works at the Port of Saint Nazaire (La nouvelle Entrée et les Travaux de Transformation du Port de Saint-Nazaire). M. Mallat. Describes recently completed works begun in 1896 to make this harbor on the west coast of France capable of accommodating the largest merchant and naval vessels. Ills. 2500 w. Ann d'Ponts et Chaussées—1908, III. No. 501 E + F.

San Francisco.


See also Piers, under WATERWAYS AND HARBORS.

Seattle.


See also Docks, under WATERWAYS AND HARBORS.

Sea Walls.

Sea Walls and Breakwaters. James Hill Forman. Deals principally with conditions in Great Britain. 4500 w. Inst of Civ Engrs (student's paper No. 607)—Dec. 23, 1907. No. 6452 N.


Construction of a Sea Wall at Fort Morgan, Alabama. Illustrated description of the new concrete wall protecting the entrance to Mobile Bay. 2500 w. Eng Rec—April 24, 1909. No. 4170.


Shore Protection.


River Protection Work on the Kansas City Southern Railway, Near Braden, Okla. J. A. Lahmer. Describes the conditions, the temporary protection used, and the construction of the more durable
CIVIL ENGINEERING

Stream Gauging

WATERWAYS AND HARBORS

Water Powers

Stream Gauging.

See same title, under Measurement.

Suez Canal.

The Present Condition of the Suez Canal. Refers to improvements made in the canal since its opening in 1869, and gives a brief description of the present condition. 1500 w. Engr, Lond—April 30, 1909. No. 4628 A.

Sydney, Australia.


Tennessee River.

The Improvement of Our Waterways; With Special Reference to the Tennessee River. James Nisbet Hazlehurst. An account of the futility of work costing over seven and a half millions. 3000 w. Eng News—May 6, 1909. No. 4522.

Toronto.

Toronto Harbor. W. J. Fuller. Reviews some of the engineering problems which have arisen from time to time in regard to the harbor and the improvements undertaken. 8500 w. Can Engr—Jan. 29, 1909. No. 2168.

See also Lake Ontario, under Waterways and Harbors.

Turkey.


U. S. Waterways.


The Fourteen-Foot Channel from St. Louis to the Gulf. A full abstract of the report of the Mississippi River Improvement board. Information on the cost and usefulness of a deep waterway from Chicago to the Gulf of Mexico, adverse to the project. 3500 w. Eng Rec—June 26, 1909. Serial, 1st part. No. 6003.


Vancouver.

See Victoria, B. C., under Waterways and Harbors.

Victoria, B. C.


Water Hyacinth.


Water Powers.

The Use and Conservation of Water Power Resources. H. von Schon. This third and closing article of a series.
CIVIL ENGINEERING

Water Powers

WATERWAYS AND HARBORS

Water Powers

analyses typical cases and suggests programmes for their development. 4000 w. Engineering Magazine—Dec., 1908. No. 674 B.


Water Power from Streams of Moderate Fall. Sylvester Stewart. An illustrated discussion of the utilization of hydraulic power resources. 1500 w. Cassier's Mag—Sept., 1909. No. 7781 B.


Potentiality of Water Power. Resources of the South. H. von Schon Information concerning the available power and the explanation of the retarded development. 4000 w. Mfrs Rec—Jan. 7, 1909. (Special No.) No. 1556 C.

The Value of Southern Water-Power Investments. Francis R. Weller. Points for the guidance of those interested in their development. 3000 w. Mfrs Rec—Jan. 7, 1909. (Special No.) No. 1557 C.


The Susquehanna River as a Source of Power. Mason D. Pratt. Read before the Engrs' Club of Central Penn. A study of data and hydrographs with the view of showing some of the limitations of this river. 4500 w. Eng News—June 10, 1909. No. 5461.


Wisconsin's Water Power Resources. L. S. Smith. An illustrated article, giving an outline of the undeveloped water powers. 1600 w. Wis Engr—June, 1909. No. 5694 D.

The Utilization of the Water Powers of Germany (Deutschlands Wasserkraft und ihre technische Auswertung). Richard Hennig. A discussion of the power resources, their economic importance, and the principles on which they should be utilized. Serial. 1st part. 3000 w. Die Turbine—Feb. 20, 1909. No. 3377 D.

Government Control of Water-Power Utilization in Switzerland (Schweizerische Bundesgesetzgebung über Ausnutzung der Wasserkraft). Dr. E. Frey. An outline and discussion of the regulations. Serial 2 parts. 3700 w. Schweiz Bau—April 17 and 24, 1909. No. 4876, each B.


The Water Powers of Sweden, Norway and Switzerland (Die Wasserkraft
CIVIL ENGINEERING

Weirs


Westland's Water Power Resources. Percy Gates Morgan. Illustrated account of the important sources of water power in this part of New Zealand, with an account of the h. p. available. 2500 w. N Z Mines Rec—April 16, 1909. No. 5821 B.

See also Isolated Plants, under ELECTRICAL ENGINEERING, GENERATING STATIONS; and Finland, under RAILWAY ENGINEERING, MISCELLANEOY.

Weirs.


Wharves.


The Reinforced Concrete Wharf of the United Fruit Company at Bocas del Toro, Panama. T. Howard Barnes. Illustrated detailed description of the construction of a wharf in waters where the Teredo navalis is troublesome. 5700 w. Pro Am Soc of Civ Engrs—Sept., 1909. No. 8184 E.


MISCELLANY

Aesthetics.


Architecture.


Army Engineers.

Engineers and the Territorials. Discusses the engineer services of the British Territorial Army. 3000 w. Engr, Lond—May 21, 1909. No. 5197 A.

Australia.


Building Removal.


Raising and Moving the Antwerp Station (Note sur le Rehaussement et le Déplacement de la Station: Anvers-Dam). P. Deprez. Illustrated description of the work. 3000 w. All Indus—Oct., 1908. No. 526 D.

Caisson Disease.


Caisson Disease and Its Prevention. The paper by Henry Japp is discussed. 4000 w. Pro Am Soc of Civ Engrs—Aug., 1909. No. 7369 E.

Contracts.


Dangerous Structures.

CIVIL ENGINEERING

Drawings


Earthquakes.


Earthquakes in the Light of the New Seismology. Oscar C. S. Carter. Outlines the theories advanced concerning the conditions of the earth below the surface, studies the causes of earthquakes, illustrating and describing seismographs and their use. 11500 w. Jour Fr Inst—June, 1909. No. 5806 D.

See also same title, under BRIDGES and CONSTRUCTION.

Engineers’ Fees.


Forestry.

Forestry Operations About the Wachusett Reservoir. Notes from a paper by E. R. B. Alldarce, describing the methods followed in maintaining the wooded lots and planting the unforested portion of the reservation. 1700 w. Eng Rec—May 15, 1909. No. 4692.

Some Problems of Forestry. Leslie B. Seely. Considers the economic side of the problem, showing results achieved in European countries; discusses the influence of forests on precipitation and drainage. 6000 w. Jour Fr Inst—July, 1909. No. 6352 D.

Geology.

The Principles of Engineering Geology. Herbert Lapworth. Lectures to students demonstrating the close relationship of civil engineering and geology. 111. 10500 w. Inst of Civ Engrs. No. 2790 N.

Graphical Computation.


History

The Engineer’s Work in the West, at an Early Day and During the Civil War. Gen. Grenville M. Dodge. A review of the writer’s experience previous to and during the Civil War, and in building the Union Pacific. 7000 w. Jour W Soc of Engrs—Feb., 1909. No. 3296 D.

Ice.

Hauling a Contractor’s Plant Across the Ice on the Hudson River. Describes methods used in taking the larger part of a plant on the N. Y. State barge canal across the Hudson, giving the bearing power of ice ten inches thick. 1000 w. Eng News—May 20, 1909. No. 4783.

Landslides.

The Salette Landslide of 1908 and Some Earlier Quebec Landslides. Describes five slides in Quebec, and also slides in British Columbia. 3500 w. Eng News—May 27, 1909. No. 5021.

Nicaragua.


Photography.


Review of 1908.

Engineering in the United States in 1908. A general review, the present number deals with railways and bridges. 6000 w. Engr, Lond—Jan. 15, 1909. Serial. 1st part. No. 2080 A.

Soil Erosion.


Strain Models.


Tropics.

### Electrical Engineering

<table>
<thead>
<tr>
<th>Subject</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>96</td>
</tr>
<tr>
<td>Distribution</td>
<td>101</td>
</tr>
<tr>
<td>Dynamos and Motors</td>
<td>103</td>
</tr>
<tr>
<td>Electro-Chemistry</td>
<td>111</td>
</tr>
<tr>
<td>Electro-Physics</td>
<td>116</td>
</tr>
<tr>
<td>Generating Stations</td>
<td>120</td>
</tr>
<tr>
<td>Lighting</td>
<td>134</td>
</tr>
<tr>
<td>Measurement</td>
<td>138</td>
</tr>
<tr>
<td>Power Application</td>
<td>144</td>
</tr>
<tr>
<td>Transmission</td>
<td>146</td>
</tr>
<tr>
<td>Miscellany</td>
<td>156</td>
</tr>
</tbody>
</table>

#### Bells


#### Cables

See Submarine Cables, and Telephone Cables, under Communication.

#### Radio-Telegraphy


Post-Graduate Lectures on Radiotelegraphy and Radiotelephony. J. A. Fleming. Reviews the seventh and eighth lectures on the above subject. 2200 w. Engng—Dec. 18, 1908. No. 1373 A.


Transatlantic Wireless Telegraphy. G. Marconi. From a discourse delivered at the Royal Inst. Describes results and observations recorded during a series of tests made to prove that wireless telegraphy across the Atlantic was possible as a means of commercial communication. Ills. 4000 w. Nature—April 22, 1909. Serial, 1st part. No. 4441 A.


Wireless Telegraphy (La Télégraphie sans Fil). M. Ferrié. A review of the

---
Radio-Telegraphy

COMMUNICATION

Radio-Telegraphy


A New System of Wireless Telegraphy Used by the Telefunken Company. Count Arco. Describes a system which is a compromise between the "spark" and the "arc" systems. 3000 w. Elect'n, Lond—April 30, 1909. No. 4603 A.
ELECTRICAL ENGINEERING

Radio-Telegraphy


The Telefunken or Quenched Spark Discharger. J. A. Fleming. Describes experiments seeming to prove that the operative principles of the Telefunken and von Lepel dischargers are different. 900 w. Elect'n, Lond—June 11, 1909. No. 5650 A.

The Lepel System of Wireless Telegraphy. Illustrates and describes the working parts of the Lepel apparatus. 1000 w. Elect'n, Lond—May 14, 1909. No. 4946 A.

The Lepel Wireless Telegraph System. Baron von Lepel. Aims to show that Count Arco's telefunken system is an intentional copy of the von Lepel system. Also an experimental investigation of the latter system, made by J. Erskine-Murray. 3500 w. Elect'n, Lond—June 18, 1909. No. 6030 A.

Selective Wireless Telegraphy. Oliver Lodge. Description of experiments to test the facility and perfection of tuning in the Lodge-Muirhead system. 1800 w. Nature—May 27, 1909. No. 5268 A.

Acoustics Tuning in Wireless Telegraphy. A brief description of the system of John H. Cuntz, in which electrical tuning is replaced by mechanical and acoustic synchronization. 800 w. Elec Engr, Lond—Oct. 8, 1909. No. 8858 A.


The Bolt Head Wireless Telegraph Station of the General Post Office. Illustrated description of this recently opened English station for communicating with ships at sea. 2200 w. Elec Engng—Dec. 17, 1908. No. 1390 A.


See also Hertzian Waves, under ELECTRO-PHYSICS.

Radio-Telephony.

A New System of Wireless Telephony. A. Carletti. Illustrated description of experimental work by Prof. Quirinus Majorana, and the system that has made possible intercommunication over a distance of 312 miles. 1200 w. Elect'n, Lond—Jan. 29, 1909. No. 2347 A.

The Majorana System of Wireless Telephony. Information concerning the system and some tests made in Italy. Elec Engr—Feb. 25, 1909. No. 3049 A.


Wireless Telephony (La Téléphonie sans Fil). The first part discusses the general theory. Ills. Serial, 1st part. 2800 w. Génie Civil—March 13, 1909. No. 4235 D.

Wireless Telephony (La Téléphonie sans Fil). C. Tissot. A general review of its history and present state. Ills. 6000 w. Tech Mod—March, 1909. No. 4229 D.


See also Radio-Telegraphy, under COMMUNICATION.

Submarine Cables.

Modern Submarine Telegraphy. S. G. Brown. Abstract of a paper before the Roy. Inst. Illustrates and describes the cables now used, the instruments, etc. 3000 w. Elect'n, Lond—July 30, 1909. Serial, 1st part. No. 6978 A.

The New Victoria and Tasmania Telegraph Cables. Description of the first cables laid for the Commonwealth government connecting Flinders Bay, Victoria, and East Bay, Low Head, Tas-
ELECTRICAL ENGINEERING

Electrograph


Telegraph Batteries.

Characteristics of Dry Batteries. F. H. Loveridge. Indicates the classes of service they are best adapted to meet, and precautions that should be taken to insure best results. 3500 w. Elec Engr, Lond.—Oct. 8, 1909. No. 8859 A.

Telegraph Cables.


Telegraph Lines.

The Construction of Overhead Lines in France (Construction des Lignes electriques aéreennes). Describes in detail the latest practice in transmission and telegraph line construction in France. IIs. Serial, 1st part. 1600 w. L'Elec.—Feb. 20, 1909. No. 3332 D.

See also Telephone Lines, under Communication.

Telegraph Offices.


Telegraphone.


Telegraph Printers.

The Murray Photo-Printing System. Describes a system designed to print in Roman type direct from line, using Wheat-


 Telegraph Wires.


Telegraphy.


The C. R. Law and High-Speed Cable Telegraphy (Das C. R. Gesetz und die Kabelschneilelegraffie). Bela Gati. Mathematical discussion, with large reference to A. E. Kennelly's formulae. IIs. 3500 w. Elektrotech u Maschinenbau—Sept. 12, 1909. No. 8501 D.

See also Magnetic Storms, under Electro-Physics.

Telemechanic.


Telephone Cables.

The Modern Telephone Cable. Frank B. Jewett. Considers the essential requirements and how nearly the present dry-core cable meets them. 5000 w. Pro Am Inst of Elec Engrs—July, 1909. No. 6495 F.

The Most Economical Combination of Capacity and Inductance in Underground Telephone Cables. B. S. Cohen. A criticism of conclusions reached by M. Devaux-Charbonnel in regard to increased transmission value of low capacity cable. 1500 w. Elect'n, Lond.—July 23, 1909. No. 6835 A.
ELECTRICAL ENGINEERING

Telephone Cables


New Observation on Long Distance Submarine Cables. F. Breisig. Abstract from Elektrotechnische Zeit. Describes experience with submarine telephone cables in which the copper conductors are wound for their entire length with fine iron wire. 2000 w. Elect'n, Lond—Nov. 27, 1908. No. 800 A.


Telephone Exchanges.


Telephone Lines.


Telegraph and Telephone Systems as Affected by Alternating-Current Lines. J. B. Taylor. A statement of power trans-

mission and telegraph and telephone conditions as they exist, with special reference to combinations, which may make trouble if operated simultaneously. Ills. 9500 w. Pro Am Inst of Elec Engrs—Oct., 1909. No. 8534 F.


See also Telephony, under COMMUNICATION.

Telephone Time Checks.

Telephone Time Checks (Les Compteurs Téléphoniques). M. Henry. Illustrates and describes a number of typical and novel devices. Serial, 1st part. 4400 w. L'Elec—July 17, 1909. No. 7220 D.

Telephone Tolls.


Telephone Transmitters.

Raymond Barker's Multi-Tone Vibrating Transmitter. Illustrated description of a novel instrument exhibited at the Physical Society's Exhibition. 1500 w. Elect'n, Lond—Dec. 18, 1908. No. 1394 A.

The Two-Tone Vibrating Transmitter and Inductive Signaling. Edward Raymond-Barker. Discusses its application especially to maintaining communication between ship and shore during cable repair. 4000 w. Elect'n, Lond—Jan. 15, 1909. No. 2073 A.

Telephony.


The Influence of Terminal Apparatus on Telephonic Transmission. Louis Cohen. Discusses this phase of the problem, showing the distortion produced by terminal apparatus, and considering certain
ELECTRICAL ENGINEERING

Telephony


The Central Battery System and its Application to Paris (Le Système Téléphonique à Batterie Centrale; son Application à Paris). Eugène H. Weiss. Illustrated description of the system, the conditions in Paris and proposals for their improvement. 4500 w. Génie Civi—Oct. 3, 1908. No. 532 D.


Some Applications of the “Domophone” (Quelques Applications du Domophone). J. A. Montpellier. Describes this microphone, its installation and use in private telephone installations. Ills. 2500 w. L’Élec.—Feb. 27, 1909. No. 3333 D.

See also Communication, under STREET AND ELECTRIC RAILWAYS.

Telephotography.


Tele-Steregraphy.


DISTRIBUTION

Autotransformers.


Buffalo, N. Y.


Chemical Works.

Electrical Equipment of the Bergenport Chemical Works. Warren H. Miller. Description of a plant of interest because of the size of the installation units, and the
Circuit Breakers

Some Tests and Uses of Condensers. W. M. Mordey. Discusses whether condensers can be used commercially in competition with over excited synchronous motors for the improvement of power factor in distribution. Also discusses use of condensers to extinguish arcs. Read before Institution of Elec. Engrs. Discussion. 1500 w. Elect'n, Lond—May 28, 1909. No. 5269 A.

Current Rectifiers.


Fuses.

Some Considerations in Designing Heavy Capacity Fuses. Louis W. Downes. Considers the subject theoretically, giving calibration tests supporting some of the deductions, and explains the actual operation of the fuse under short-circuit. 4000 w. Pro Am Inst of Elec Engrs—July, 1909. No. 6494 F.

Discussion on "Some Considerations in Designing Heavy Capacity Fuses." Discussion at Frontenac, N. Y., of paper by Louis W. Downes. 2200 w. Pro Am Inst of Elec Engrs—Oct., 1909. No. 8540 F.

Industrial Plants.


Insulation.


The Linseed Oil Fallacy. Gives facts showing that its oxidation unfit for electrical uses. 1000 w. Elec Rev, Lond—March 5, 1909. No. 3150 A.

See also Wiring, under DISTRIBUTION.

Motor Circuits.


Regulations.

Factory and Workshop Act, 1901.—Rules for Electricity in Factories and Workshops. A copy of revised regulations as given in the report of Mr. James Swinhurne. 5500 w. Elec Engr, Lond—Jan. 22, 1909. No. 2203 A.

Switchboards.

See same title, under GENERATING STATIONS.

Switches.


Recent Low-Tension Apparatus (Neuerrungen im Apparatebau für niederspan-
ELECTRICAL ENGINEERING

Wiring

DYNAMOS AND MOTORS

A. C. Dynamos


Deformation of Pressure Curves Due to Load in Alternate Current Generators.


The E. M. F.s Induced in the Exciting Winding of Single-Phase Alternators. H. Brühn. Abstract from Elektrotechnik und Maschinenbau. Gives results of investigations showing that in addition to the e. m.
ELECTRICAL ENGINEERING

A. C. Dynamos

DYNAMOS AND MOTORS

A. C. Motors

f. which appears at the slip-rings other e. m. f.s exist inside the windings. 1500 w. Elect'n, Lond—April 16, 1909. No. 4196 A.

Electromotive Force Wave-Shape in Alternators. Comfort A. Adams. An application of the methods of connecting the shape of the flux-distribution curve with the e. m. f. wave shape, developed by the writer, with an illustration taken from Mr. Bache Wiigs paper. 3500 w. Pro Am Inst of Elec Engrs—July, 1909. No. 6498 F.


Fluctuations in the Speed of the Rotors of Alternators Operating in Parallel. George H. Shepard. An analysis of the interactions of two alternators in parallel explaining the means that may be employed for stopping the enlargement of the angle of phase displacement while it is still very small. 1800 w. Elec Wld—Jan. 28, 1909. No. 2125.


Parallel Operation of Alternators. Dr. E. Rosenberger. Read before the Manchester Sec. of Inst. of Elec. Engrs. A study of the problem from the theoretical point of view, and showing how the results may be employed. 5500 w. Elec Engr, Lond—Jan. 29, 1909. Serial. 1st part. No. 3243 A.


Triple-Frequency Currents in Neutrals of Three-Phase Star Connected Alternators. E. W. Marchant and J. K. Catter-son-Smith. Shows how such currents arise, their effects, and indicates means for rendering the effects negligible. 1800 w. Elect’n, Lond—Aug. 6, 1909. No. 7091 A.

Leakage Reactance. J. Rezeman. Deals with the leakage reactance of the stator windings of alternating-current machines, the rotors being removed. Ills. 2500 w. Elect’n, Lond—Aug. 6, 1909. Serial. 1st part. No. 7436 A.


A. C. Motors.


Types of Alternating-Current Commutator Motors and the Best Frequency for Railways. F. Eichberg. Investigates the influence of the frequency on the generators, transformers, transmission line, and more especially on single-phase commu-
ELECTRICAL ENGINEERING

A. C. Motors

DYNAMOS AND MOTORS

A. C. Turbo-Generators

Alternating Current Electric Motors


The Calculation of Single-Phase Commutator Motors. J. Fischer-Hinnen. Abstract from Elektrotechnische Zeitschrift. Treats the subject from a practical standpoint and is devoted to the calculation and design of these machines. 2500 w. Elect'n, Lond—Sept. 24, 1909. No. 8345 A.


Reduction in Capacity of Polyphase Motors Due to Unbalancing in Voltage. S. B. Charters, Jr., and W. A. Hillebrand. Reports a series of tests to determine the change in performance under other than ideal conditions. 2500 w. Pro Am Inst of Elec Engrs—June, 1909. No. 5831 F.

Discussion on "Reduction in Capacity of Polyphase Motors Due to Unbalancing in Voltage." The paper by S. B. Charters, Jr., and W. A. Hillebrand is discussed at Frontenac, N. Y. 3000 w. Pro Am Inst of Elec Engrs—Oct., 1909. No. 8543 F.


Three-Phase Device for Driving Phonograph and Moving-Picture Machines. Francis M. Weldon. Illustrated description of a device for operating a phonograph and moving-picture machine in order to produce the image and sound at the same time. 1200 w. Elec Wild—July 29, 1909. No. 6762.


The Starting Torque of Three-Phase Motors, with Squirrel-Cage Rotors. Max Kloss. Aims to show the relations between the starting torque and the slip. 5000 w. Elect'n, Lond—Sept. 17, 1909. No. 8112 A.

See also Railway Motors, under DYNAMOS AND MOTORS.

A. C. Turbo-Generators.


ELECTRICAL ENGINEERING

Air Gaps


See also Turbine Tests, under MECHANICAL ENGINEERING, STEAM ENGINEERING.

Air Gaps.

A Diagram for Correction Coefficients for Air-Gap Reluctances. T. C. Baillie. Quotes experiments verifying Carter’s formula, and gives a diagram from which the coefficients can be read. 500 w. Elect’n, Lond.—Jan. 8, 1908. No. 1807 A.

Armature Cooling.


Armature Reactions.


Armatures.


The Tips of Teeth on Armature Cores. Miles Walker. Deals with the main considerations controlling the design of tips of teeth and the effect of the shape on the magnetic leakage. 1200 w. Elect’n, Lond.—Oct. 1, 1909. No. 8484 A.

Automobile Motors.

See Electric, under MECHANICAL ENGINEERING, AUTOMOBILES.

Brakes.


Brushes.


See also Lubrication, under DYNAMOS AND MOTORS.

Commutation.


Commutators.


Some Remarks on Flattening and Blackening of Commutator Bars. Considers troubles which, if not rectified, render the machine unfit for service. 1000 w. Elec Rev, Lond.—Jan. 15, 1909. No. 2064 A.

Turbo-Commutators. R. J. Roberts. Discusses points in their design and construction. 2200 w. Elect’n, Lond.—May 7, 1909. No. 4719 A.

Condensers.

Controllers


See also Electric Driving, under MECHANICAL ENGINEERING, POWER AND TRANSMISSION.

Cooling.


Dampeners.


Design.

Calculation of Wire for Shunt Field Circuit. A. M. Bennett. Gives chart for finding the nearest proper size of wire for a given m. m. f. in ampere-turns, shunt field voltage and number of poles. 900 w. Elec Wld—Nov. 14, 1908. No. 227.

D. C. Dynamos.


See also A. C. Dynamos, under DYNAMOS AND MOTORS.

D. C. Motors.


A New Method for Regulating the Speed of Induction Motors, and Its Applications. C. Krämer. Abstract translation from Elek. Zeit. Describes a method where energy is taken from the rotor and supplied to the axis of the asynchronous machine as mechanical energy. 1500 w. Electn, Lond—March 5, 1909. No. 3152 A.


See also Controllers, Railway Motors, and Starting, under DYNAMOS AND MOTORS; and Electric Power, under MINING AND METALLURGY, MINING.

Economy.

Output and Economy Limits of Dynamo-Electric Machinery. J. C. Macfarlane and H. Burge. Considers present day practice and the directions in which extensions may be expected. 9500 w. Inst. of Elec Engrs—Dec. 10, 1908. No. 1206 N.

Failures.

Typical Electric Motor Failures. Discusses a number of recent failures and ways of avoiding them. 2200 w. Elec Wld—Nov. 7, 1908. No. 98.
ELECTRICAL ENGINEERING

Flux Density

Flux Density.


Heating.


See also Windings, under DYNAMOS AND MOTORS.

High-Voltage Dynamos.


Induction Motors.

A Sketch of the Theory of the Adjustable-Speed, Single-Phase, Shunt Induction Motor. F. Creedy. Discusses the variation of the speed of these machines from synchronism. 7500 w. Pro Am Inst of Elec Engrs—July, 1909. No. 6490 F.


The Heating of Induction Motors. A. Miller Gray. Shows the limitations imposed on the designer of induction motors by the heating of the machine, and how this heating may be predetermined. 3000 w. Pro Am Inst of Elec Engrs—June, 1909. No. 5834 F.


Speed Control of Induction Motors by Frequency Changers. H. C. Specht. Describes methods, explaining principles upon which they are based. 2500 w. Elec Jour—Oct., 1909. No. 8527.

Speed Control of Induction Motors by Cascade Connection. H. C. Specht. Describes different schemes for possible speed combinations in a cascade set and considers the performances. 2500 w. Elec Jour—July, 1909. No. 6438.


The “Spinner” Induction Motor. Illustrates and describes this recent development in variable speed induction motors, giving some applications. 1500 w. Engr, Lond—April 9, 1909. No. 4041 A.


Torque and Speed Relations in Polyphase Induction Motors. A. S. McAllister. Gives a diagram which represents the complete performance of an induction motor, discussing the effect upon the torque of changing the secondary resistance of a motor without altering the design proportions. 1200 w. Elec Wld—April 22, 1909. No. 4438.

Methods of Starting Large Three-Phase Induction Motors. J. W. Rogers. Briefly describes the construction of such motors and the methods employed for starting them. 2500 w. Prac Engr—Jan. 15, 1909. No. 2050 A.
ELECTRICAL ENGINEERING

Induction Motors


The Application of the No-Load and Short-Circuit Diagram to the Design and Testing of Induction Motors. Stanley P. Smith. Describes a diagram by means of which the efficiency, torque, power factor, slip, etc., can be accurately determined. 3000 w. Elect'n. Lond.—May 7, 1909. Serial. 1st part. No. 4720 A.

A New Method for Regulating the Speed of Induction Motors, and Its Applications. C. Krämer. Abstract translation from Elek. Zeit. Describes a method where energy is taken from the rotor and supplied to the axis of the asynchronous machine as mechanical energy. 1500 w. Elect'n. Lond.—March 5, 1909. No. 3152 A.

Investigation and Calculation of the Additional Iron Losses in Induction Motors. O. S. Bragsted and Fraenckel. Abstract trans. from Elektrochemische Zeit. Investigates the origin of these losses and deduces formula for calculating the same. 1500 w. Elect'n. Lond.—April 2, 1909. No. 3983 A.


Some Graphical Solutions to Three-Phase Problems. Leonard Solomon. Giving a graphical method of calculating the resistances to be inserted in the rotor circuit in two cases, based on the Heyland diagram. 1200 w. Elect'n. Lond.—Jan. 15, 1909. No. 2068 A.


See also Starters, under DYNAMOS AND MOTORS.

Interpoles.


Lubrication.


Motor Nomenclature.


Pole-Face Losses.


Railway Motors.

Features of Continuous-Current Railway Motor Design. E. V. Pannell. The limiting dimensions for these motors is explained and features discussed. 1500 w. Elec Rev, Lond.—Dec. 4, 1908. No. 1007 A.

Faults on Tramcar Motors. Spencer Robinson. Deals with the most practical...
Railway Motors

means of locating the faults and repairing the damage. 1500 w. Elec Rev, Lond—April 2, 1909. No. 3896 A.


Single Phase Railway Motors (Les Alternateurs monophasés de Traction). M. Henry. An illustrated description of the various types, with details of the lines on which they are used. Serial, 1st part. 1500 w. Elec—March 20, 1909. No. 4225 D.

Single-Phase Railway Motors (Les Alternateurs monophasé de Traction). M. Henry. A general review. The first part discusses the principal types, their characteristics, the choice of frequency, and efficiency. IIs. Serial. 1st part 3500 w. L'Elec—Dec. 19, 1908. No. 1292 D.


The Development and Construction of Motors and Driving Gears for Electric Cars (Entwicklung und Beschaffenheit der Triebmotoren und Triebwerke elektrischer Eisenbahnnfahrzeuge). Dr. W. Kummer. IIs. Serial. 1st part. 3000 w. Schweiz Bau—Nov. 7, 1908. No. 1157 B.

Oerlikon Alternating-Current Railway Motors and Their Effects on Telephone Systems. Dr. Behn-Eschenburg. Gives results of general interest in single-phase traction, showing how difficulties have been overcome. 2500 w. Elect'n, London—May 21, 1909. No. 5186 A.

The Speed of Railway Motors (Ueber die Bemessung der Umdrehungszahl bei elektrischen Bahnmotoren). W. Kummer. A mathematical discussion of motor design to give a certain speed under specified load conditions. IIs. 3500 w. Schweiz Bau—June 12, 1909. No. 6579 B.

See also Interpoles, under DYNAMOS AND MOTORS.

Reactance Coils.


Regulation.


Repulsion Motors.


Resistances.


Rheostats.


Starters.

Recent Practice in the Design of Motor Starters. Illustrates and describes recent
Starting designs. 1000 w. Prac Engr—May 14, 1909. Serial, 1st part. No. 4948 A.


Starting.

A Comparison of the Methods of Starting Squirrel-Cage Induction Motors. Selby Haar. Analyzes the performance when started at lowered voltage obtained respectively by means of auto-transformers and rheostats in the primary circuits. Also letter by Dr. C. P. Steinmetz. 1500 w. Elec Wld—March 11, 1909. No. 3086.


See also Rheostats, under DYNAMOS AND MOTORS.

Synchronous Motors.


Turbo-Generators.


Turbo-Generators (Les Turbogénératrici-ces). An abstract of a paper by M. J. Frankfourtou outlining the present status of their design. Ills. 3500 w. Elecn—April 17, 1909. No. 4825 D.

Vector Diagrams.

The Use of Arrow-Heads in Alternating-Current Vector Diagrams. A. S. Langsdorf. Explanations and examples aiming to remove the confusion often shown by students. 800 w. Elec Wld—Aug. 12, 1909. No. 7015.

Windings.


Note on the Heating of Magnet Coils. G. Trevor Williams. Experimental separation of heat losses, showing that about one-half are dissipated by convection, and the remainder by radiation and conduction. 1200 w. Elect'n, Lond—Aug. 13, 1909. No. 7313 A.


Alkalis.

See Chlorine, under ELECTRO-CHEMISTRY.

Calcium Carbide.


ELECTRO-CHEMISTRY

ELENEAICAL ENGINEERING
Calcium Cyanamide. ELECTRO-CHEMISTRY Corrosion

The Manufacture of Calcium Carbide (Le Carbure de Calcium, Etat actuel de la Fabrication). M. Pitaval. A historical résumé, with a review of the latest methods and apparatus. IIs. 4800 w. Génie Civil—Feb. 6, 1909. No. 3339 D.

Calcium Carbide (Le Carbure de Calcium). R. Pitaval. Discusses the economics of its manufacture. 2800 w. Génie Civil—March 27, 1909. No. 4237 D.

Practical Considerations on the Modern Electric Furnace for the Manufacture of Calcium Carbide (Considerazioni pratiche sui Forni elettrici moderni per la Fabricazione del Carburo di Calcio). Arturo Pavloni. Serial, 1st part. 1600 w. Electricitá—Feb. 11, 1909. No. 3348 D.

Calcium Cyanamide.


The Actual State of the Cyanamide Industry (Etat actuel de la Fabrication de la Cyanamide). Robert Pitaval. Describes the process of manufacture, plants established, etc. Ills. 3500 w. Génie Civil—Aug. 21, 1909. No. 7936 D.

Cells.

Characteristics of Dry Cells. F. H. Loveridge. Read before convention of the Supts. of Telegraphs. Gives some of their characteristics and indicates what classes of service they are adapted to meet, and precautions necessary for their practical working. 3500 w. Sig Engr—July, 1909. No. 6435.


See Standard Cells, under Measurement.

Chlorine.


Cleaning Baths.

Electric Cleaner for Use with Low Voltage Current. Describes its use for cleaning iron or steel to be plated. 1800 w. Brass Wld—March, 1909. No. 3444.

Corrosion.


The Corrosion and Decay of Metals. J. T. Milton. Lecture at the Franco-British Ex. to the Inst. of Marine Engrs. Briefly considers the causes and the methods of protection, etc., showing that electric currents may be made to protect as well as to corrode. 3000 w. Mech Engr—Oct. 30, 1908. Serial, 1st part. No. 181 A.

Corrosion of Iron and Steel. Edward Crowe. Abstract of a paper and discussion before the Cleveland Inst. of Engrs. Investigates some of the conditions under which relative rates of corrosion take place, suggesting protective methods. 2500 w. Ir & Coal Trds Rev—March 5, 1909. No. 3179 A.

Corrosion of Iron and Steel. Edward Crowe. Abstract of paper before the Cleveland Inst. of Engrs. Considers some of the circumstances and conditions under which relative rates of corrosion take place. 1800 w. Engr, Lond—April 23, 1909. No. 4472 A.


Experiments on the Corrosion of Steel in Contact with Bronze in Sea-Water. Edward C. Sherman. A report of experiments made in connection with the work on the Charles River dam, at Boston, showing the protection afforded by a proper use of zinc. Also a study of the corrosion of submerged steel in contact with other metals. 1800 w. Eng News—March 18, 1909. No. 3242.


See also Reinforced Concrete, under CIVIL ENGINEERING, MATERIALS OF CONSTRUCTION; and Pipe Corrosion, under MECHANICAL ENGINEERING, HEATING AND COOLING.

Detinning.


The Detinning Industry in Italy (L'Industria della Distagnatura e le sue Condizioni in Italia). Mario Lombardi. Describes methods, plants, etc. 3500 w. Industria—June 13, 1909. No. 6554 D.

The Detinning of Tin-Plate Scrap and the Economics of the Process (Der Entzinnung der Weissblechabfälle und ihre wirtschaftliche Bedeutung). K. Goldschmidt. Describes various methods proposed and in use and discusses the economic importance of the detinning industry. Ills. 4400 w. Stahl u Eisen—Dec. 30, 1908. No. 1945 D.

Education.

See same title, under INDUSTRIAL ECONOMY.

Electric Furnaces.

The Laws of Electrode Losses in Electric Furnaces. Carl Hering. Gives the laws deduced by the writer, explaining the assumptions on which they are based, and giving proofs and examples. 7500 w. Elec-Chem & Met Ind—Oct., 1909. No. 8332 C.

Electrochemical Equivalents.


Electro-Chemistry.


Electrolysis.

Electrolysis with Magnesium Cathodes (Über Elektrolyse mit Magnesiumkathoden). Dr. Fr. Schmidt. A report of
Electrolytic Assaying


Electrolytic Assaying.


Electro-Metallurgy.


The Electric Furnace and Some of Its Applications. William Hoopes. Describes the electric furnace and its advantages, considering a number of applications. Ills. 4000 w. Elec Jour—April, 1909. No. 3951.

Electric and Fuel Furnaces. F. Louvrier. Considers the progress in the substitution of electrical energy, as a thermic agent, for the usual combustibles, coal, coke, petroleum, etc., and the causes. 2500 w. Elec-Chem & Met Ind—April, 1909. No. 3662 C.


Electric Furnace for the Production of Carbon Bisulphide. Explains some of the uses of bisulphide of carbon, and illustrates and describes the furnace used for its manufacture. 1600 w. Elec Rev, Lond—Dec. 25, 1908. No. 1520 A.


See also Refining, under MINING AND METALLURGY, Copper; Electro-Metallurgy, under MINING AND METALLURGY, Iron and Steel; and Zinc Smelting, under MINING AND METALLURGY, Lead and Zinc.

Electro-Plating.


The Conditions Which Determine the Composition of Electro-Deposited Alloys. Samuel Field. Abstract of paper read before the Faraday Soc. Investigates the conditions under which brass is deposited from a mixed solution of copper and zinc cyanides. 1500 w. Elect'n, Lond—July 30, 1909. No. 6980 A.

Copperring Iron or Steel Articles before Nickeling. Shows that a study of each case is necessary to prevent “spotting
Electro-Chemistry


Atmospheric Nitric Acid and Nitrates. Reviews briefly the attempts made for the commercial fixation of atmospheric nitrogen, specially describing the system of Mr. Moscicki. 1600 w. Elec Engr, Lond—Jan. 29, 1909. No. 2344 A.


The Fixation of Atmospheric Nitrogen (Der gegenwärtige Stand der Stickstofffrage). L. Max Wohlgemuth. A brief review of the present state of the industry, the products, etc. 2700 w. Stahl u Eisen—May 19, 1909. No. 5749 D.

Ozone.


Progress in the Electric Production of Ozone (Neuerungen auf dem Gebiete der elektrischen Ozonrzeugung). Oscar
Review of 1908

**ELECTRO-PHYSICS**


**Review of 1908.**


**Valve Electrodes.**


**ELECTRO-PHYSICS**

**Alternating Currents.**

Non-Harmonic Alternating Currents. Dr. Benjamin F. Bailey. Calls attention to features of complex harmonic e. m. f. s. and currents. 2000 w. Elec Wld—Nov. 28, 1908. No. 634.

Even Harmonics in Alternating-Current Circuits. Charles P. Steinmetz. Shows that it is incorrect to assume that even harmonics are never present, citing examples. 700 w. Elec Wld—March 25, 1909. No. 3513.


Polyphase Magnetomotive Forces. J. D. Nies. Derives rules by means of which any step curve can be resolved into sine components, a brief account of experiments, and higher harmonics. 3500 w. Elec Wld—Aug. 26, 1909. No. 7352.

The Production of Small Variable Frequency Alternating Currents Suitable for Telephonic and Other Measurements. B. S. Colien. Abstract of a paper read before the Physical Soc. Describes various methods of producing such currents, including a new method. 1200 w. Elect'n, Lond.—Dec. 4, 1908. No. 1010 A.

The Dielectric Strength of Compressed Air. E. A. Watson. Experimental investigations to determine the manner in which the dielectric strength of air changes when compressed to pressures higher than atmospheric. 4500 w. Inst of Elec Engrs—March, 1909. No. 3283 N.

**Arcs.**


The Rotation of the Electric Arc in a Radial Magnetic Field. J. Nicol. Abstract of a paper read before the Roy. Soc. Experiments showing the speed of the arc to be independent of the arc length, to be proportional to the magnetic field strength, and to increase linearly with the current. 1000 w. Elect'n, Lond.—Sept. 3, 1909. No. 7733 A.

**Atomic Theory.**

Prof. E. Rutherford's Address to Section A of the British Association. (Abstract.) Considers the present position of the atomic theory in physical science, and methods devised to determine the values of fundamental atomic magnitudes. 4500 w. Elect'n, Lond.—Aug. 27, 1909. No. 7647 A.

**Cells.**

Experiments on the Current and Energy Efficiencies of the Finlay Electrolytic Alkali-Chlorine Cell. F. G. Donnan, J. T. Barker, and B. P. Hill. Abstract of a paper read before the Faraday Soc. De-
Circuit Closing


Condensers.

The Effect of an Air-Blast Upon the Spark Discharge of a Condenser Charged by an Induction Coil or Transformer. J. A. Fleming and H. W. Richardson. Abstract of a paper before the Phys. Soc. The discharge current is shown to be more regular and the resonance more accurately delineated. 1500 w. Elect'n, Lond—May 14, 1909. No. 4947 A.

Conductivity.

Conductivity and the Valuation of Electric Conductors. E. F. Northrup. A statement of accepted definitions of conductivity and the necessary relations which follow, with a brief account of how conductivity may be measured. 6000 w. Elec-Chem & Met Ind—May, 1909. No. 4506 C.


The Effect of Tension on Thermal and Electrical Conductivity. N. F. Smith. Abstract from Phys. Rev. Gives results showing that thermal conductivity of bars of iron, steel, copper, brass, etc.; increased when a moderate tension was applied, whilst the electrical conductivity diminished. 1500 w. Elect'n, Lond—Sept. 3, 1909. No. 7734 A.

Currents.


Current Surge.


Dielectric Strength.

See same title, under Measurement.

Electric Waves.


Experimental Method for the Analysis of E. M. F. Waves. P. G. Agnew. Describes experiments made to determine whether it is possible to get an approximate value of the first and second harmonics present in an a. m. f. wave by means of ordinary portable instruments and calibrated condensers. 2500 w. Elec Wld—July 15, 1909. No. 6336.

The Coefficient of Reflection of Electrical Waves at a Transition Point. Louis Cohen. Develops an expression for the ratios of the reflected and transmitted waves to the incoming wave at a transition point. 900 w. Bul Bureau of Stand—May, 1909. No. 6772 N.

Graphical Computation of Fourier's Constants for Alternating-Current Waves. Charles S. Slichter. Describes a method of analysis requiring the wave form to be plotted on specially prepared co-ordinate paper, once for each harmonic, and the curve to be measured by planimeter. Also editorial note. 1500 w. Elec Wld—July 15, 1909. No. 6338.

Electromagnets.


Test of Electromagnets. C. P. Nachod. Brief account of tests made to determine the most suitable form of magnets of given dimensions. IIs. 400 w. Elec Wld—Sept. 30, 1909. No. 8248.

Electrical Engineering

Electrons

Electrons.


Recent Electrical Theory. J. Franklin Meyer. Reviews the attempts to formulate an electrical theory and explains the electron theory. 3000 w. Engr, Pa—Dec., 1908. No. 2011 D.


Flame.


Heat Convection.

The Convection of Heat from Small Copper Wires. A. E. Kennelly, C. A. Wright and J. S. Van Bylevelt. Describes a research made on the convective loss of heat from small copper wires, of less than 0.7 mm. or 27.5 mils diameter, presenting quantitative results. Iills. 5500 w. Pro Am Inst of Elec Engrs—July 1909. No. 6483 F.

Heating.


Hertzian Waves.


History.

The History of Electrical Theories. P. Gruner. Abstract translation of a paper read before the Keplerbund at Frankfurt. Traces the changes which discovery has wrought. 2000 w. Sci Am Sup—Nov. 28, 1908. No. 474.

Hysteresis.

Dependence of Magnetic Hysteresis Upon Wave Form. Morton G. Lloyd. Describes investigations made, the apparatus used, and states the conclusions. 7000 w. Bul Bureau of Stand—Feb., 1909. No. 3286 N.

Differential Ballistic Methods of Measuring Hysteresis Losses. R. Beattie and P. M. Elton. Describes a method that is quick in operation and has the advantage that it refers to short test pieces. 3000 w. Elect'n, Lond—June 4, 1909. Serial. 1st part. No. 5518 A.

Induction.


Magnetic Alloys.

Magnetic Properties

Describes investigations of the magnetic properties at different temperatures. 1200 w. Elect'n, Lond—Dec. 25, 1908. No. 1525 A.

Magnetic Properties.


See also Bronzes, under MECHANICAL ENGINEERING, MATERIALS OF CONSTRUCTION.

Magnetic Storms.

The Magnetic Storm of September 25th. An account of the storm and the interruption it caused to telegraphic communication. 2200 w. Elect'n, Lond—Oct. 8, 1909. No. 8868 A.

Magnetism.


Mechanical Equivalent.


Oscillations.


Permeability.


Radiation.


Radio-Activity.


Radio-Activity


Resistance.

The Variation of Manganin Resistances with Atmospheric Humidity. F. E. Smith, in the Phil. Mag. Describes tests carried out at the Nat. Phys. Laboratory, showing that coils, coated with a varnish which does not absorb moisture, have an advantage over shellac-coated coils. 1700 w. Electr'n, Lond—Nov. 20, 1908. No. 733 A.

Röntgen Rays.

An Apparatus for Generating High-Tension Direct Current for the Production of Röntgen Rays (Ein Apparat zur Erzeugung hochgespannten Gleichstroms für die Röntgentechnik). Martin Hochstätter. Illustrated description. Serial, 1st part. 3200 w. Elektrotech u Maschinenbau—June 13, 1909. No. 6716 D.

Self-Induction.

A Graphical Study of Self-Induction. F. P. McDermott, Jr. Discusses the application of a graphic method to problems connected with the rise of current in a circuit possessing resistance and inductance under the application of a steady e. m. f. 1500 w. Elec Wld—May 20, 1909. No. 5042.

Skin Effect.

The Increase in Resistance through the Skin Effect (Ueber die Widerstandsver- nahme durch Skinwirkung). Dr. F. Rusch. Mathematical. Ills. 2500 w. Elektrotech Zeitschr.—Nov. 5, 1908. No. 1199 B.


Spark Gaps.


Waves.


Generating Stations

Accumulators.


The Installation and Care of Storage Batteries. Omer F. Dubruel. Directions for installing, care, charging, etc. 3000 w. Elec Wld—May 6, 1909. No. 5034.


The Theoretical Calculation of the Battery Capacity Required for a Given Load. Dr. W. Lulofs. Aims to show that the Peukert formula holds good for English makes, and to calculate the respective
ELECTRICAL ENGINEERING

Accumulators

values of the constants n and a. 1500 w.
Elec'tn, Lond—Jan. 1, 1909. No. 1698 A.


Accumulators for Peak Loads. A. M. Taylor. Considers the comparative costs and working expenses of steam plant and accumulators, showing the decided advantage of the latter. 2500 w. Elect'n, Lond—Dec. 4, 1908. No. 1009 A.


The Operation and Maintenance of Storage Batteries. T. P. Strickland. Describes the system in use at the Sydney, N. S. W., Tramway Department. 3000 w. Aust Min Stand—Nov. 18, 1908. Serial. 1st pat. No. 1097 B.

Leads Accumulator Electrolyte. A. Herrick Jackson. Read before the Elec. Assn. of Vic. Considers the nature, density and amount of the electrolyte, its function, purity, etc. 2500 w. Aust Min Stand—Nov. 11, 1908. No. 1088 B.


See also Rotary Converters, under Transmission; and Electric Power, under MARINE AND NAVAL ENGINEERING; and Electric, under MECHANICAL ENGINEERING, AUTOMOBILES.

Austria

Details of Austrian Electrical Plants Built or Extended in 1906 and 1907 (Statistik der österreichischen Elektrizitätswerke welche im Jahre 1906 und 1907 erbaut und erweitert wurden). Tables. 4000 w. Elektrotech u Maschinenbau—Oct. 25, 1908. No. 596 D.

Centralization.


Central Stations.

Modern Power Station Design. H. de B. Parsons. The article is confined to steam-driven plants, and considers the essentials of commercial and operative success. 5000 w. Cassier's Mag—Aug., 1909. No. 7034 B.

Features of Recent Electric Railway Power Station Design. An illustrated comparison of stations built in the last six years, showing general tendencies of arrangement and equipment. 2000 w. Elec Ry Jour—March 27, 1909. No. 3508.


The Distribution Department. H. F. J. Thompson. Considers the staff needed to secure efficient and economical working, the duties, etc. 2500 w. Elec Rev, Lond—June 11, 1909. No. 5648 A.
ELECTRICAL ENGINEERING

Central Stations


General Considerations in the Design of Large Steam Central Stations (Notes sur les grandes Usines centrales à Vapeur au Point de Vue des Conditions générales de leur Etablissement). M. G. Chevrier. Discusses their location, layout, and design and arrangement of the steam and electrical equipment. 13000 w. Mem Soc Ing Civ de France—June, 1909. No. 7993 G.


The Efficiency of Electric Power Stations. Remarks on the losses in electric generating stations, and the possibility of securing more economical results. 1200 w. Eng'g, Lond.—Aug. 27, 1909. No. 7660 A.


The Use of Large Gas Engines for Generating Electric Power. Leonard Andrews and Reginald Porter. Estimates the respective capital costs of a steam turbine and a gas engine central station for the same load, and shows what the running costs would be. Ills. 12000 w. Inst of Elec Engrs—Feb. 11, 1909. No. 2579 N.

Generating Stations


Electrical Engineers and Gas Power. Philip W. Robson. Considers the application of gas engines to moderate-size generating stations. 2500 w. Elec Rev, Lond.—March 26, 1909. No. 3778 A.


Producer Gas-Engine Station at Hoopson. Ill. Describes a 280-hp gas engine supplied by two producers of the Munzel type driving a 200 k. w. 60 cycle, 2300 volt alternator. Ills. 4000 w. Elec Wld—June 3, 1909. No. 5270.


Building and Boiler Plant of Waterside Station No. 2 of the New York Edison Company. Illustrated detailed description of the building and the equipment, with a comparison with Waterside Station No. 1. 4000 w. Elec Wld—March 4, 1909. No. 2991.

Main and Auxiliary Steam Equipment in Waterside Station No. 2 of the New York Edison Company. Illustrated description of the feed-water system, high-pressure steam piping, exhaust and drip piping, and oiling system. 3500 w. Elec Wld—March 11, 1909. No. 3084.


Central Stations

Power Plant Extensions of the Boston Elevated Railway Company. Illustrates and describes the enlargement of the power plants and reconstruction work. 2500 w. Elec Wld—Feb. 18, 1909. No. 2517.


Recent Central Station Developments at Hartford, Conn. Describes the plants and their equipment, discussing recent improvements. Ills. 3000 w. Elec Wld—Nov. 28, 1908. No. 633.


Station No. 3 of the Rochester Railway & Light Company. Illustrated description of the largest steam generating station of this company. 3500 w. Elec Wld—Jan. 21, 1909. No. 1868.


Generating Stations


Quarry Street Station of the Commonwealth Edison Company, Chicago. William Kelly. Illustrates and describes the characteristics of this important station, pointing out the reasons for its creation. 5000 w. Elec Wld—Jan. 2, 1909. No. 1470.


Power Generating System and Records of the Twin City Rapid Transit Co. Description of the new Hennepin Island Power Station, Minneapolis, and recent additions to the steam power station. Ills. 4500 w. Elec Ry Jour—June 5, 1909. No. 5250.


Central-Station Practice and Results from Waterloo, Ia. Illustrated description of a progressive management. 2500 w. Elec Wld—June 10, 1909. No. 5400.

Central Power Plant at the U. S. Navy Yard, Charleston, S. C. A. P. Ball. De
Central Stations

GENERATING STATIONS


Leeds Electricity Undertaking. Illustrates and describes extensions to the lighting station for power supply purposes. 2500 w. Electr. n, Lond—March 12, 1909. Serial. 1st part. No. 3405 A.

Electricity Supply at St. Albans. Illustrated description of an English plant combining a refuse destructor and generating station. 3000 w. Elec Engnr—Dec. 24, 1908. No. 1516 A.

Walthamstow Electricity Station. Illustrates and describes the installation of a steam plant in England. 2000 w. Tram & Ry Wld—May 6, 1909. No. 4953 B.


The Cap Pinede Station of the Mar sesilles Electric Company (Usine électrique de la Cie d’Electricité de Marseille au Cap Pinede). Illustrated description. 3000 w. Génie Civil—April 17, 1909. No. 4838 D.


The New Firenze Central Station of the Italian State Railways (La nuova Centrale elettrica nelle Officine delle Ferrovie dello Stato a Firenze e le relative Esperienze di Rendimento). Illustrated description of this gas power station. Serial. 1st part. 2500 w. Ing Ferro—Sept. 16, 1909. No. 8643 D.

The Power Plant and Transmission System of Castelnuovo-Valdarno, Italy. An illustrated description of a steam power plant installed at lignite mines, generating electrical energy which is transmitted to surrounding cities and towns. 2200 w. Elec Rev, N Y—Dec. 12, 1908. No. 935.


Central Stations


A New Electrical Generating Station at Buenos Ayres. Illustrates and describes the large central station in course of construction. 2500 w. Engr, Lond—Sept. 10, 1909. No. 7868 A.

Electric Power Installation at Khartoum. Illustrated description of a large modern electric plant recently erected. 3000 w. Engng—Feb. 12, 1909. No. 2594 A.

See also Refuse Disposal, under CIVIL ENGINEERING, MUNICIPAL; Gas Engines and Gas Power Plants, under MECHANICAL ENGINEERING, COMBUSTION MOTORS; Steam Heating, under MECHANICAL ENGINEERING, HEATING AND COOLING; Turbines, under MECHANICAL ENGINEERING, STEAM ENGINEERING, and London, under STREET AND ELECTRIC RAILWAYS.

Cost.


Cost Keeping.

Cost Keeping in the Central Station Contracting Department. Ludwig Kemper. From a paper read before the N.-W. Elec. Assn. Describes the system used at Albert Lea, Minn. 1000 w. Elec Wld—Jan. 28, 1908. No. 2127.

Cost Systems.


Design.

Prime Movers. Charles P. Steinmetz. Discusses the features of prime movers and the suitability of different types for the requirements of electric service. 5500 w. Pro Am Inst of Elec Engrs—Feb., 1909. No. 2419 F.


Simplicity in Design. Alington Johnston. Shows the necessity of adopting the simplest methods of arrangement of steam and electrical machinery in a generating station to facilitate easy operation. 1200 w. Elec Rev, Lond—Oct. 8, 1909. No. 8864 A.


See also Power Plants, under MECHANICAL ENGINEERING, POWER AND TRANSMISSION.

Economics.


Profitable Day Loads for the Central Station. S. A. Fletcher. Suggests domestic and commercial applications of elec-
ELECTRICAL ENGINEERING

Economics

Generating Stations

Hydro-Electric

Economic

The Extension of Electric Service to Outlying Communities. Abstract of paper by J. S. Knowlson, before Northwestern Electrical Assn, in which the opportunities for small as well as large generating stations to extend their service are indicated. 2400 w. Elec Rev, N Y—June 5, 1909. No. 5426.


Central Station Electric Motor Service. Walter Stuart Kelley. Considers the underlying principles that should govern the design for an electrical energy distribution system, from the viewpoint of the central station. 3000 w. Elec Wd—Oct. 7, 1909. No. 8395.


Domestic Electricity Supply (Including Heating and Cooking) is Affected by Tariffs. W. R. Cooper. Considers the importance of so adjusting tariffs that electric heating and cooking may be encouraged. 8500 w. Inst of Elec Engrs—Nov. 26, 1908. No. 863 N.


Germany.

German Central Stations. Notes taken from La Lumière Electrique. Information showing the growth of the German electrical industry and related subjects. 1500 w. Electn, Lond—Jan. 29, 1909. No. 2346 A.

German Central-Station Statistics and the Proposed Taxation of Electrical Ser-


Great Britain.

Some Comparisons of the Electrical Industry in This Country and Abroad. W. M. Mordey. Inaugural address before the Institution of Electrical Engineers on Nov. 19. 5000 w. Engng—Dec. 11, 1908. No. 1218 A.


Hydro-Electric.

The Analysis of an Hydro-Electric Project. H. von Schon. The features of the market analysis are discussed, the power load inquiry, the power output, the cost, etc. General discussion. 13000 w. Jour W Soc of Engrs—Dec., 1908. No. 1856 D.


Hydro-Electric GENERATING STATIONS

Cassier's Magazine—June, 1909. No. 5541 B.


Non-Attendance Electrical Plant at Westfield, Mass. Brief illustrated description of an almost automatic plant which has been in operation about six years. 800 w. Elec Wld—May 20, 1909. No. 5043.

A Farm Hydro-Electric Plant Without Operating Attendant. P. J. O’Gara. Description of a domestic plant automatically controlled from a residence a quarter of a mile from the waterfall. Supplies power to a house and farm at an initial cost of less than $1,500. IIs. 3000 w. Elec Wld—June 3, 1909. No. 5272.

Harnessing the Torrents. Describes the work of conserving and utilizing the water power of the Susquehanna and the Connecticut rivers. IIs. 2200 w. Pub Works—Jan.-March, 1909. No. 5645 D.

A Low-Head Hydroelectric Development. S. Rice. An interesting plant at Milford, Me., to develop 12,000 h. p. under a head of 20 feet, is described. IIs. 2200 w. Power—Feb. 9, 1909. No. 2374.


The Hydro-Electric Plant of the Connecticut River Power Company. Illustrated detailed description of a development to furnish power for cities in Massachusetts, New Hampshire and Vermont, over a radius of 60 miles. 3000 w. Eng Rec—March 27, 1909. No. 3536.


The Hydro-Electric Plant of the Uncas Power Company at Scotland, Conn. Illustrated description of a power development on the Shetucket River; the power to be transmitted to Norwich, 11 miles distant. 4500 w. Eng Rec—Nov. 21, 1908. No. 411.


Divided-Fall Hydro-Electric Developments on the Hoosic River. An illustrated account of a development of unusual interest because of the duplex plant found necessary. 2500 w. Elec Wld—May 20, 1909. No. 5041.

The Hoosic River Development of the Schenectady Power Company. Illustrated description of details at the Schaghticoke plant, and at the Johnsonville plant. These plants are capable of independent operation, though essentially parts of one development. 2500 w. Eng Rec—July 24, 1909. Serial, 1st part. No. 6643.

System of the Rochester Railway & Lighting Company. Illustrated description. The chief source of power is the Genesee River, but steam-driven generators are used and power is also transmitted from Niagara Falls. 2000 w. Elec Wld—Jan. 14, 1909. No. 1768.


Hydro-Electric Generating Stations

Kilbourn, Wis. 6000 w. Eng Rec—Sept. 4, 1909. No. 7555.

The Construction of the Hydro-Electric Developments at Kilbourn, Wisconsin. Illustrated detailed description of the construction plant and methods which are quite out of the ordinary. 4000 w. Eng Rec—Sept. 18, 1909. No. 7815.


Development of Water Power at Great Falls. Alexander Leggat. Illustrated description of these falls on the Missouri River, which form one of the great water-powers of the world, and of their development. 4000 w. Min Wld—July 24, 1909. No. 6654.


The Hydro-Electric Developments of the Nevada-California Power Company. H. D. Chapman. Illustrated detailed description of the developments in Inyo County, Cal., utilizing the waters of Bishop Creek, and furnishing power for Nevada mines. 2500 w. Eng Rec—March 6, 1909. No. 2971.

The Cedar River Power Development of the City of Seattle, Washington.
Hydro-Electric Generating Stations

Hydro-Electric


The Augst Water-Power Plant near Basel (Wasserkraftanlage Augst bei Basel). Josef Rossshändler. Illustrated description of this 30,000 horse power plant. 2500 w. Zeitschr d Oest Zeng u Arch Ver—Oct. 9, 1908. No. 590 D.

The Burglaugen Electric Plant (Das Elektrizitätswerk Burglaugen). E. Frota.
Hydro-Electric generating stations


German 5000-Volt Transmission System. Illustrated description of a new municipal hydro-electric plant recently completed for the city of Munich. 3500 w. Elec Wld—Nov. 28, 1908. No. 632.


The Kaaden Hydro-Electric Plant on the Eger (Das Elektrizitätswerk an der Eger der Stadt Kaaden). W. Werner. Illustrated description of this important installation in Austria. Ills. 2200 w. Oest Wochenschr f d Oeffent Baudienst—June 19, 1909. No. 6700 D.

Hydro-Electric Plants on the Kerka River in Dalmatia (Hydroelektrische Anlagen am Kerkaflusse in Dalmatien). Hugo Tenzer. Illustrated description of several plants. Serial, 1st part. 1600 w. Elektrotech u Maschinenbau—Oct. 4, 1908. No. 593 D.


Generating and Transmission Plants of the Société Angelo-Romana (Le Officine e gli Impianti elettrici per il trasporto di Forza della "Società Angelo-Romana"). Illustrated detailed description. Power is generated at Tivoli and transmitted to Rome. Serial, 1st part. 2700 w. Industria—Jan. 3, 1909. No. 2651 D.


Hydro-Electric Power Plant on the Piabpanha River, Brazil. Illustrated description of one of the largest hydro-electric stations in South America. 1800 w. Elec Wld—Nov. 14, 1908. No. 224.


City of Launceston, Tasmania. Explains four propositions submitted to improve the hydraulic power from the South Esk River. 3500 w. Aust Min Stand—June 30, 1909. No. 6868 B.


See also Central Stations, under Generating Stations: Pipe Lines and Weirs, under CIVIL ENGINEERING, Water
ELECTRICAL ENGINEERING

Isolated Plants

Supply: Cofferdams and Water Powers, under Civil Engineering, Waterways and Harbors; Turbine Plants, under Mechanical Engineering, Hydraulic Machinery; and Tin, under Mining and Metallurgy, Mining.

Isolated Plants.

Natural and Artificial Conservation of Water Power for Electrical Purposes. Edward R. Taylor. Illustrates and describes a number of small plants and power applications on farms, and shows the great amount of power still unused. Discussing related questions. 6000 w. Jour Fr Inst—Dec., 1908. No. 968 D.


Central Stations versus Private Plants. Editorial discussion of how to decide as to which is the more economical system in any given case, referring to data given in a recent paper before the Inst. of Elec. Engrs. 3000 w. Engng—Feb. 26, 1909. No. 3068 A.

Isolated Plant vs. Central Station. A letter addressed to the Board of Estimate and Apportionment of New York City, by Percival Robert Moses, giving reasons why a private isolated plant should be installed in the New York public library. 2500 w. Power—April 27, 1909. No. 4311.

Alternating-Current Industrial Power Plants. Warren H. Miller. Discusses the application of alternating current to a manufacturing plant, showing what can be done in even a small installation. Ills. 3500 w. Elec Wld—June 3, 1909. No. 5273.


The Relation Between Engine-Room and School-Room, and How to Attain It. Discussion of the operation of the isolated plant and the proposed plan to require two years’ actual service before admitting a young man to apprenticeship. 1300 w. Elec Age—May, 1909. No. 5428.

The Model Operation of an Isolated Plant. Illustrated detailed description of the method of operating the mechanical plant of the St. Regis Hotel, New York City; the cost records and efficiency. 2500 w. Elec Age—Jan., 1909. No. 1852.


Operating Results of an Isolated Power Plant at Binghamton, N. Y. Information concerning the plant of the Security Mutual Life Insurance Co., which has shown very good results in operation. Ills. 3000 w. Eng Rec—July 24, 1909. No. 6049.


New Turbine Power Plant of the Nairn Linoleum Company. Illustrated description of a new plant to serve a group of buildings and replace rope drives with
Isolated Plants


The Electrical Equipment of Messrs. Selfridge & Co.'s New Building in Oxford Street, London. Illustrated description of the details for electric lighting and power in a modern department store. 5500 w. Elect'n, Lond—March 5, 1909. No. 3153 A.


See also Mechanical Plants, under MECHANICAL ENGINEERING, POWER AND TRANSMISSION; and Terminals, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS.

Load Curves.


Load Factors.


Netherlands.


Operation.


Parallel Operation.

See A. C. Dynamos, under DYNAMOS AND MOTORS.

Power Factor.


Rates.


ELECTRICAL ENGINEERING

Rates


Supply by Meter, or Contract? W. A. Toppin. Discusses the two systems and the prevention of fraud. 1200 w. Elec Rev, Lond—March 5, 1909. No. 3149 A.


The Diversity Factor Amongst Lighting. Considers the estimating of the diversity factor, and the charging for lighting. 900 w. Elect’n, Lond—July 16, 1909. No. 6668 A.


Records.


SwitchBars.

See Switches, under Distribution.

Switchboards.


Notes on Switchboard Instruments. H. W. Richardson. Remarks on inspection, testing, hot wire instruments, etc. 4000 w. Elec Age—March, 1909. No. 3217.


High-Tension Equipment and Control of Waterside Station No. 2 of the New York Edison Company. Illustrated detailed description of the high-tension control board. 1600 w. Elec Wild—March 25, 1909. No. 3510.


High-Tension Switchboards with Removable Switch Carriages. Illustrated detailed description. 1500 w. Ir & Coal Trds Rev—April 23, 1909. No. 4474 A.

See also Isolated Plants, under Generating Stations; Instruments, under Measurement; and Electric Power, under Mining and Metallurgy, Mining.

Switch Gear.

The Reyrolle Ironclad Switch-Gear. Illustrates and describes a type of high-tension switch-gear consisting of separate ironclad units, hand-operated. 3000 w. Engng—Nov. 6, 1908. No. 323 A.

Some Elementary Considerations of High-Tension Switchgear. Notes giving suggestions helpful in selecting a suitable switch. 1700 w. Elec Engr, Lond—July 16, 1909. Serial, 1st part. No. 6667 A.

Taxation.

Proposal for a Tariff on Electricity and Gas (Entwurf eines Elektrizitäts- und Gasstatutgesetzes). Text of a bill before the German Reichstag to establish a tax on electricity and gas undertakings. 2000 w. Elektrotech Zeitschr—Nov. 12, 1908. No. 1302 B.


United Kingdom.


Wind Power.

Arc Lamps.


The Regulation of Alternate-Current Flame Arc Lamps. Paul Högnner. Abstract from Elektrotechnische Zeit. Calls attention to the importance of the resistance variations, and to the fact that the use of choking coils improves the efficiency nearly 40 per cent. 1000 w. Elect'n, Lond—May 14, 1909. No. 4945 A.


Automobile.
See Lighting, under MECHANICAL ENGINEERING, AUTOMOBILES.

Circuits.
See Voltage Regulation, under TRANSMISSION.

Fire Risks.
Illumination

- dealing with colored lights, 6000 w.


- Illumination Cost Factors, Max Harris. Explains methods used in figuring cost of illumination, discussing the factors to be considered. 3000 w. Elec Jour—June, 1909. No. 5547.


- See also Shop Lighting, under MECHANICAL ENGINEERING, MACHINE WORKS AND FOUNDRIES.

Lighting

- Incandescent Lamps.

- New Incandescent Lamps. Francis E. Cady. Discusses the new metallic filament lamps, their manufacture, physical and electrical properties, etc. 3000 w. Cent Sta—Dec., 1908. No. 934.


- The Forerunners of the Metallic Filament Incandescent Lamp. Dr. C. Richard Böhm. Reviews the experiments made, with a view to utilize rare earths. 1200 w. Engr, Lond—Aug. 6, 1909. No. 7109 A.


- The Luminous Efficiency of Metal Filament Lamps. W. W. Coblenz. Investigation of the factors producing this efficiency, especially the so-called radiation.
Incandescent Lamps

LITITNG

Incandescent Lamps


A German View of the Future of the Metal-Filament Lamps. A summary of their position as compared with rivals, as given by H. Remane in the E. T. Z. 700 w. Elec Rev, Lond—Oct. 30, 1908. No. 184 A.


The Actual Status of Metallic Filament Lamps (Etat actuel des Lampes à Incandescente à Filaments métalliques). A. Blondel. Reviews their history, the difficulties of their manufacture, their properties and the results obtained from their use. Ills. 10800 w. Bul Soc Int d’Elecns—Feb., 1909. No. 3304 F.

Power Characteristics of the Tungsten Filament. Charles P. Steinmetz. Reports an investigation of the manner in which the power consumption increases with increase of voltage. Also editorial note. 1200 w. Elec Wld—July 8, 1909. No. 6220.


Experience with High-Efficiency Lamps in Industrial Plants. Warren H. Miller. Describes efforts made to use high-efficiency lamps in a big oil plant, showing the destruction to both tautalum and tungsten lamps when exposed to vibration. Also editorial. 3000 w. Elec Wld—May 6, 1909. No. 5032.

Industrial Plant Illumination with Tungstens. Arthur Gillman. Illustrates and describes some methods whereby the difficulties inherent to tungsten lamps installed under factory conditions may be overcome. 1000 w. Elec Wld—Sept. 30, 1909. No. 8251.


The Tungsten Lamp and Its Behavior on Life Tests as Compared With Carbon Lamps. H. D. Burnett. Discusses the objections to these lamps, their efficiency, and results of life tests, with matters related. General discussion. 14500 w. Can Soc of Civ Engrs, Bul 5—May, 1909. No. 5854 N.


Luminosity

See also Illumination, under LIGHTING; Shop Practice, under MECHANICAL ENGINEERING, MACHINE WORKS AND FOUNDRIES; and Tantalum, under MINING AND METALLURGY, MINOR MINERALS.

Luminosity.

Luminosity and Temperature. P. G. Nutting. An outline of the equations thus far developed and the most reliable constants that have been ascertained by careful investigation. 2000 w. Elec Wld—Sept. 23, 1909. No. 8043.

Mercury Arc.


Mercury—Vapor Lamps.

The Küch Quartz Mercury Vapor Lamp. O. Bechstein. Illustrated description of a lamp substituting quartz for glass. 1000 w. Sci Am Sup—Nov. 28, 1908. No. 476.


Photometric Units.


Photometry.

Important International Agreement on Photometric Units. Reports an agreement between England, France and the United States upon a unit of candlepower of luminous intensity to be known as the international candle. 2000 w. Elec Wld—May 27, 1909. No. 5323.


Street.


See also Meters, under MEASUREMENT.

Progress.


Progress in Electric Lighting. Gives details of the newer metallic filament lamps and their use for street lighting, a résumé of arc lamp development, and interesting fittings for both. Ills. 10000 w. Elect’n, Lond—Nov. 13, 1908. No. 437 A.


Signal Lamps.

ELECTRICAL ENGINEERING

MEASUREMENT

Alternating Current.


Barometer.


Capacity.


Dielectric Strength.


MEASUREMENT

Dielectric Strength


Recent Developments in the Street Lighting of Berlin, and a Comparison with Former Methods of Illumination. Dr. L. Bloch. A detailed comparison of the various methods now in use. 2500 w. Electr'n, Lond—Jan. 1, 1909. Serial. 1st part. No. 1701 A.

Street Lighting in Budapest. Francis Jehl. A brief account of an arc lamp trial circuit installed, which has been said to be one of the most perfect systems of street lighting yet invented. 1200 w. Elec Wld—Oct. 21, 1909. No. 8810.


See also Incandescent Lamps, under Lighting.

Theatres.

Regulators for Stage Lighting (Bühnenregulatoren). V. Paetow. Illustrated description of various types of dimmers. 5000 w. Elektrotech Zeitschr—Oct. 22, 1908. No. 613 B.

Train.

See Train Lighting, under RAILWAY ENGINEERING, MOTIVE POWER AND EQUIPMENT.

Transformers.

Dynamo Testing

MEASUREMENT

Galvanometers


Eddy-Current Loss.

See Hysteresis, under MEASUREMENT.

Electrodynamometers.


See also Standard Cells, under MEASUREMENT.

Electrometer.


Frequency.

Stroboscopic Measurements of Alternating-Current Frequency with Electric Lamps. A. E. Kennedy. An account of measurements to about one-tenth of 1 per cent, with no other apparatus than a permanent magnet and an incandescent lamp, with the aid of a stroboscopic fork. 1500 w. Elec Wld—Dec. 26, 1908. No. 1284.

Galvanometers.

A Convenient Form of Galvanometer with Magnetic Shielding. E. F. Nichols and S. R. Williams. Abbreviated from
High Frequency Currents  MEASUREMENT  Insulation

Phys Rev. Detailed description. Diagram. 1500 w. Elect'n, Lond—April 9, 1909. No. 4026 A.

Calibration of a Ballistic Galvanometer. C. M. Jansky. Points out the fallacy of methods given in some handbooks, and the reason for the inaccuracy. 500 w. Elec Wld—April 8, 1909. No. 4431.


High-Frequency Currents.


Hysteresis.

Experimental Determination of the Hysteretic Exponent. Nicholas Stahl. Shows how the hysteretic exponent may be evaluated. 500 w. Elec Wld—Nov. 21, 1908. No. 339.

Errors in Magnetic Testing with Ring Specimens. Morton G. Lloyd. The methods of determining the hysteresis of a ring specimen are considered and the energy losses calculated. 2500 w. Bul Bureau of Stand—Feb., 1909. No. 3288 N.

Magnetic Testing of Iron with Alternating Current. Albert Campbell. Describes the method by which tests for hysteresis and eddy current loss are carried out at the Nat. Phys. Laboratory, and gives some of the results. 3000 w. Elec Engr, Lond—Sept. 24, 1909. No. 8339 A.

Hysteresis Loss.


Inductance.

A Simple Means of Measuring Inductances. C. J. Watson. Describes apparatus consisting of a kind of Wheatstone bridge in which two inductances are balanced against two capacities. 1000 w. Elect'n, Lond—March 5, 1909. No. 3154 A.

Instruments.

Measurements with Portable Instruments. F. P. Cox. Comments on conditions that influence such measurements, causes of error, accuracy, etc. 4000 w. Elec Age—Oct., 1908. No. 49.


Electrical Measuring Instruments and Some of Their Weaknesses. Kenelm Edgcumbe. Discusses points to be considered in selecting an instrument, the question of accuracy, etc. 5500 w. Pub Works—Oct.—Dec., 1908. No. 3593 B.


Ammeter for the Accurate Measurement of Large Alternating Currents. E. F. Northrup. Discusses the laws governing the pressure in a conductor of circular cross-section conveying on electric current, and describes an ammeter based on the variation of pressure in a liquid conductor. 3500 w. Elect'n, Lond—Oct. 1, 1909. No. 8488 A.


See also Switchboards, under Generating Stations.

Insulation.

Insulation Testing


See also Dielectric Strength, under MEASUREMENT.

Iron Losses

A Method of Measuring Iron Losses in Bundles of Straight Strips. Robert Beattie. Describes experiments made to determine whether the wattmeter method proposed would work with short specimens. 3000 w. Elect'n, Lond—Nov. 6, 1908. No. 314 A.

Laboratories


See also Education, under INDUSTRIAL ECONOMY.

Magnetic Testing

Errors in Magnetic Testing with Ring Specimens. M. G. Lloyd. Discusses the inaccuracy of the apparent values of mean gilberts per centimeter, and of the mean hysteretic power obtained from ring test pieces, owing to the differences of perimenter at the inside and outside of the ring. Gives a correction factor. 1500 w. Elec Wld—Dec. 26, 1908. No. 1285.

Meter Connections


Meters


Mercury Motor Continuous-Current Electricity Meters. Rankin Kennedy. A résumé of the different stages of development in this class of instrument. 1000 w. Elec Rev, Lond—June 18, 1909. No. 6029 A.


The Measurement of Energy in Single-Phase Three-Wire Systems (Energiemessung in Wechselstrom-Dreileiteran-
Electrical Engineering

Meter Testing

Oscillographs.

Photometry.
See same title, under Lighting.

Potentiometers.
The Use of the Potentiometer on Alternate-Current Circuits. Charles V. Drysdale. Discusses the application of the potentiometer principle to a.c. measurements and describes the use of the author's phase-shifting transformer with a potentiometer. 1200 w. Elect'n, Lond—April 16, 1909. No. 4194 A.

Power Factor.

Resistance.


Notes on Three Methods of Electrical Measurement (A propos de trois Méthodes de Mesures électriques). M. Bouffart. Discusses the measurement of the resistance of a galvanometer by the method of equal deviation, the e. m. f. of a cell by the Poggendorff method, and the internal resistance of a cell by the Mance method. Ills. 3500 w. Bul Sci de l’Assn des Éleves—Feb., 1909. No. 4205 D.

Rheograph.
Application of the Rheograph to the
Self-Induction


Self-Induction.

See Capacity, under MEASUREMENT.

Slip.


Speed.


Standard Cells.


See also Electrodynamometers, under MEASUREMENT.

Standards.

The Construction of Standards of the International Ohm (Note sur la Construc-

See also Units, under MEASUREMENT.

Stray Flux.


Transformer Testing.


Units.


The Principles Involved in the Selection and Definition of the Fundamental Electric Units to Be Proposed for International Adoption. F. A. Wolff. 6500 w. Bul Bureau of Stand—Nov., 1908. No. 1347 N.

Electrical Units and Standards (Unités et Étalons électriques). M. Devaux-Charbonnel. Discusses the problems to be solved in devising an international system. 6000 w. L'Elec—Dec. 12, 1908. No. 1921 D.


Some Reflections on Systems of Units (Quelques Réflexions sur les Systèmes de Mesure). M. Brylinksi. Compares the
### Power Application

**Agriculture.**

Power from the Farm Brook. Donald Cameron Shafer. An illustrated account of the possible uses to be made of electric power generated. 4000 w. Am Rev of Revs—Jan., 1909. No. 1737 C.


See also Isolated Plants, under Generating Stations.

**Air Compressors.**

See Air Compressors, and Turbo-Compressors, under MECHANICAL ENGINEERING, Power and Transmission.

**Alternating Currents.**


Blowing Engines.

See same title, under MINING AND METALLURGY, Iron and Steel.

**Brakes.**

See same title, under MECHANICAL ENGINEERING, Machine Elements and Design.

**Cranes.**

See Crane Trolleys, under MECHANICAL ENGINEERING, Transporting and Conveying.

---

**Dry Docks.**

Electricity Applied to a Tyneside Dry Dock. Illustrated description of an up-to-date example of electrical equipment in shipyard work. 2500 w. Elec Rev, Lond—Oct. 23, 1908. No. 71 A.

**Elevators.**

See same title, under MECHANICAL ENGINEERING, Transporting and Conveying.

**Heating.**

Electric Heating. W. S. Hadaway, Jr. Considers the practical adaptability of commercial electricity for heating purposes and for performing useful work. Also discussion. 10500 w. Pro Am Inst of Elec Engrs—Feb., 1909. No. 2420 F.


Notes on Radiators. Gives tabulated results of experiments to determine the efficiency, with related information. 1800 w. Elec Rev, Lond—May 7, 1909. No. 4668 A.

See also Economics, under Generating Stations.

**Hoisting.**

See Electric Hoisting, under MINING AND METALLURGY, Mining.

**Lock Gates.**

See Locks, under CIVIL ENGINEERING, Waterways and Harbors.

**Machine Tools.**

See Electrical Driving, under MECHANICAL ENGINEERING, Power and Transmission.
Marine Propulsion

See Electric Power, under MARINE AND NAVAL ENGINEERING.

Marseilles Congress.


Mining.

See Electric Power, under MINING AND METALLURGY. COAL AND COKE, and under MINING.

Observatory.


Power Contracts.

Analysis of Proposed Change in Power Contract. Robert Sibley. Gives the proposed contract, showing that there is an increased expenditure due to unity power factor clause and peak load penalty. 2200 w. Eng & Min Jour—April 17, 1909. No. 4006.

Printing Presses.


See also Electric Driving, under MECHANICAL ENGINEERING, Power and Transmission.

Progress.


Pumping.

See Electric Pumping, under MECHANICAL ENGINEERING, HYDRAULIC MACHINERY.

Refrigerating Machines.

See Refrigeration, under MECHANICAL ENGINEERING, HEATING AND COOLING.

Regulations.


Rolling Mills.


See also same title, under MINING AND METALLURGY, IRON AND STEEL.

Shipboard.

See Electric Power, under MARINE AND NAVAL ENGINEERING.

Ships.

See Electric Power, under MARINE AND NAVAL ENGINEERING.

Steel Works.

See same title, under MINING AND METALLURGY, IRON AND STEEL.

Textile Mills.


See Electric Driving, under MECHANICAL ENGINEERING, Power and Transmission.

Theatres.

Electricity in the Production of "Joan of Arc." Brief account of the many uses made of electricity in the recent presentation at the Harvard Stadium. 1000 w. Elec Wld—June 24, 1909. No. 5889.

Water Softening.

See Softening, under CIVIL ENGINEERING, WATER SUPPLY.

Welding.

See same title, under MECHANICAL ENGINEERING, MACHINE WORKS AND FOUNDRIES.
ELECTRICAL ENGINEERING

TRANSMISSION

Alternating Currents

The Development of an Alternating-Current Distributing System. H. B. Gear. Discusses problems common to the development of all a. c. systems and also some special cases. Discussion. IIs. 7000 w. Jour W Soc of Engrs—Dec., 1908. No. 1858 D.


Balancing.


Cable Drawing.


See also Conduits, under Transmission.

Cable Laying.


Cable Records.


Cables.

The Resistance and Reactance of Armored Cables. J. B. Whitehead. Gives calculations showing that even at 60 cycles, and with outgoing and return cables placed close together, the reactance would not be serious. 2500 w. Pro Am Inst of Elec Engrs—June, 1909. No 5830 F.

Losses, Induced Volts and Amperes in Armor and Lead Cover of Cables. H. W. Fisher. Supplementary to J. B. Whitehead’s paper, presenting data obtained from measurements made on the same cables. Also further tests. 800 w. Pro Am Inst of Elec Engrs—Aug., 1909. No. 7062 F.


Discussion on “Surges on Cable Systems with Aluminum Cell Protection.” The paper by E. E. F. Creighton and S. D. Strong is discussed at Frontenac, N. Y. IIs. 3000 w. Pro Am Inst of Elec Engrs—Oct., 1909. No. 8539 F.


The Calculation of Charging Currents in Three-Phase Cables. Prof. E. W. Marchant. Read before the British Assn., at Winnipeg. Considers the determination of the capacity current flowing into a three-phase line. 1000 w. Elect'n, Lond—Sept. 3, 1909. No. 7731 A.


Cables TRANSMISSION Grounding

underground cables. Also methods of laying cables. 2500 w. Elect' n, Lond—June 25, 1909. No. 6275 A.


The Composition and Durability of Cable Papers. C. Beaver. A statement of facts from the cable manufacturer's standpoint. Supplemental to articles by Clayton Beadle and Henry P. Stevens, from the chemist's point of view. Also editorial. 4500 w. Elect'n, Lond—July 9, 1909. No. 6420 A.

Electric Cables (Cables électriques). Victor Lebeau. Graphical charts for determining the size of cables for d. c. and a. c. transmission, the heating under certain conditions, etc. Ills. 2500 w. All Indus—Aug., 1909. No. 7931 D.

See also Dielectric Strength, and Quatratation Testing, under MEASUREMENT; and Induction, under TRANSMISSION.

Circuit Breaking.


Condensers.

Protection Against High-Pressure Discharges. Illustrated description of the Morscicki condenser and its use, combined with the Giles electric valve, for the protection of cables. 1800 w. Elec Rev, Lond—Oct. 1, 1909. No. 8481 A.

Conduits.


Electric Conduit System at Baltimore. Notes from the last report of Charles E. Phelps, Jr., giving the history of this undertaking. 1700 w. Eng Rec—Oct. 9, 1909. No. 8446.

See Pipe Lines and Pipe Location, under CIVIL ENGINEERING, WATER SUPPLY.

Direct Current.


Fault Location.


Four Wire.


Frequency.


Grounded Neutral.

Earthing the "Neutral" of Three-Wire Systems. Considers the extent to which the main should be earthed, the object, and the calculations regarding neutral earthing conductors. 2500 w. Elec Rev, Lond—Sept. 10, 1909. No. 7858 A.

Grounding.

High Tension


High Tension.

High Tension Transmission. Percy H. Thomas. Discusses the feasibility, earning power, and design of an adequate plant. 6000 w. Pro Am Inst of Elec Engrs—May, 1909. No. 4092 F.


Insulation.

The Composition and Durability of Cable Papers. Clayton Beadle and Henry P. Stevens. Discusses the composition and durability of papers from the chemical point of view, in the present article. General review of types, applications, improves 4000 w. Elect'n, Lond—April 16, 1909. Serial. 1st part. No. 4193 A.

Insulators.

Condenser Type of Insulation for High-Tension Terminals. A. B. Reynolds. Explains the difficulties of this problem, and describes the mechanical design of this type of insulator, explaining the principles. Ills. 2000 w. Pro Am Inst of Elec Engrs—March, 1909. No. 3478 F.


Flash-Over Voltages. J. Lustgarten. The effects of high voltages on the air, the nature and properties of the gaseous ion, explaining the mechanism of the brush spark and arc discharges, etc. 5000 w. Elect'n, Lond—Dec. 18, 1908. No. 1393 A.


The Electrical Qualities of Porcelain, with Special Reference to Dielectric Losses. H. F. Haworth. Abstract of a paper read before the Royal Soc. Gives particulars of experiments made to determine the capacity, conductivity and dielectric loss of porcelain and their variations in respect to potential, temperature and time. 2500 w. Elect'n, Lond—Jan. 1, 1909. No. 1609 A.


Insulatör für Transmission Lines (Freileitungsisolatoren). M. Gerstmeier. Discusses the requirements of a satisfactory high-tension insulator, methods of testing, etc. Ills. Serial, 1st part. 3500 w. Elek Kraft u Bahnen—July 3, 1909. No. 7460 D.

Lightning.

The Theory of Lightning. Daniel S. Carpenter. A study of the accumulation of electricity on the clouds and its close association with the formation of rain.
Lightning Arresters

TRANSMISSION

Line Design

Lightning Arresters


The Testing of Lightning Arresters (Sulla Prove dei Parafulmini). Illustra-3200 w. Elettricità—Nov. 19, 1908. No. 1130 D.


See also Signalling, under RAILWAY ENGINEERING, CONDUCTING TRANSPORTATION.

Lightning Protection


Damage by Lightning. Discusses conductor systems and the ignorance of some who are permitted to install them. 3000 w. Elec Rev, Lond—Oct. 1, 1909. No. 8482 A.

Line Construction.


High-Tension Aerial Transmission Lines (Über Hochspannungsfreileitung)


See also Telegraph Lines, under COMMUNICATION.

Line Design.

Calculation of the High-Tension Line. Percy H. Thomas. Discusses the calcu-
Line Design

Transmission

Transmission as relating to regulation and energy line loss, and with especial reference to the unusually long and high power lines, deriving formulae. 6500 w. Pro Am Inst of Elec Engrs—June, 1909. No. 5829 F.


Line Failures


Line Repairs


Lines


110,000-Volt Transmission Line at Grand Rapids. Illustrated description of this successful high-tension transmission system. 1800 w. Can Elec News—June, 1909. No. 5468 C.


ELECTRICAL ENGINEERING

Lines

TRANSMISSION

Protective Devices


See also Central Stations, under Generating Stations; and Rio Janeiro, under STREET AND ELECTRIC RAILWAYS.

Line Troubles.


Losses.

Output and Regulation in Long-Distance Lines. Percy H. Thomas. Discusses more especially the line-output, regulation or voltage-variation, and the line energy-loss. 9800 w. Proc Am Inst of Elec Engrs—June, 1909. No. 5828 F.


Motor Converters.

The Theory and Application of Motor Converters. H. S. Hallo. Describes the principle, operation, design, and characteristics of motor converters, referring to arrangements necessary when used on three-wire and traction systems. Ills. 6000 w. Inst of Elec Engrs—April, 1909. No. 4713 N.


Permutator.

The Permutator. A description of this current-changing device, with editorial comment. 6000 w. Elec Age—Nov., 1908. No. 879.

The Permutator. F. J. Wellhouse. An explanation of this machine, a form of electric current converter, and its possibilities, illustrating types. 1500 w. Sib Jour of Engng—June, 1909. No. 5807 C.

Poles.


Concrete Poles (Betonmasten). Describes the Locher system and the cost, strength and economy of poles made by it. Ills. 2000 w. Beton u Eisen—March 11, 1909. No. 4284 F.

Protective Devices.

Storm and Lightning Protection to Lines Wires. T. W. Poppe. Suggests the installation of a strong galvanized steel cable to protect the lines from falling branches. Ills. 1000 w. Elec Wld—April 1, 1909. No. 3755.


The Protection of Lines Against Surge Tensions and Atmospheric Discharges. Discusses means of effecting a complete protection of the distribution system. 2500 w. Elect’n, Lond—Feb. 26, 1909. No. 3055 A.
ELECTRICAL ENGINEERING

Protective Devices


The Protection of Electrical Plants against Excess Voltages (Contributo allo Studio sulla Protezione degli Impianti elettrici contro le Sovratensioni). Gino Campos. Reviews the requirements of protective devices and the principles on which they are designed. Ills. 3500 w. Industria—April 11, 1909. No. 4851 D.

See also Transformers, under TRANSMISSION.

Protective Relays.

A New System of Sub-Station Relays for Incoming Transmission Lines. Paul MacGahan. Brief description of devices previously used, with reasons for their failure to give complete protection, with description of the latest device for this purpose. 2500 w. Elec Jour—Nov., 1908. No. 209.

Reactive Coils.

Air-Blast Reactances. R. E. Scott. Points out a consideration that should be taken into account in judging the size from the rating, or the rating from the size. Ills. 1000 w. Harvard Engng Jour—Jan., 1909. No. 3195 D.

Regulations.


Resonance.


Rotary Converters.


Substations.


Three-Wire.

The Three-Wire System with One Dynamo. Cecil P. Poole. Explains why the neutral wire is needed; methods used for compensating unbalanced load, etc. Ills. 1500 w. Power—Jan. 5, 1909. (Special No.) No. 1485 D.

See also Insulation, under MEASUREMENT; Balancing, under TRANSMISSION; and Conductors, under STREET AND ELECTRIC RAILWAYS.
Transformers. Characteristics and uses of Transformers. R. H. Fenkhausen. Considers their selection and care, how to connect them up, etc. I. 1500 w. Power—Nov. 3, 1908, No. 41.


The Electrical Transformer. Norman G. Meade. An illustrated practical explanation of the essential features and different types, what they are used for, how cooled, etc. 1500 w. Power—Oct. 5, 1909. No. 8519.


Transformers. H. B. Gear and P. F. Williams. Explains the laws governing the design of the transformer, the types of windings and core used, discussing matters relating to efficiency, etc. Ills. 5000 w. Elec Age—April, 1909. No. 4484.


The Practical Aspects of Recent Improvements in Transformers. W. A. Layman. Read before the N. E. L. A. Points out the way in which some of the improvements have been made possible. 2500 w. Elec Age—June, 1909. No. 6134.

Distributing Transformers. E. G. Reed. Traces the development, showing the requirements, and discussing the electrical and mechanical characteristics. Ills. 4500 w. Elec Jour—July, 1909. No. 6437.


The Design of Shell-Type Transformers. Roger F. Heller. Suggestions concerning methods that may be employed in selecting the final dimensions. 1200 w. Elec Wld—Sept. 9, 1909. No. 7621.


Transformer Sets for Variable Voltage Electric Furnace Requirements. C. I. Zimmerman. Describes two methods of obtaining variable voltages when currents as high as 40,000 or more amperes are needed. 3000 w. Wis Engr—Dec., 1908. No. 2734 D.


"C. M. B." Patent Direct-Current Rotary Transformer. J. C. Macfarlane and H. Burge. Describes the construc-
Transformers


Electrical Measurements on Circuits Requiring Current and Potential Transformers. L. T. Robinson. Discusses the causes which make certain corrections necessary either in the manufacture of the transformer or in their use; methods for determining the variations; and the corrections. Ills. 7000 w. Pro Am Inst of Elec Engrs—July, 1909. No. 6498 F.

Relations Between Output, Losses, Dimensions, Weight and Cost of Transformers. E. G. Reed. Deals with the effect of changing the design proportions. 2500 w. Elec Wld—Sept. 9, 1909. No. 7622.


Tests of a 100,000-Volt Transformer (Versuche mit 100,000 Volt-Transformator). Gustav Benischke. Describes the tests and discusses the results. Ills. 1800 w. Elek Kraft u Bahnen—Dec. 4, 1908. No. 1989 D.


Transformer Connections. Considers some of the most common problems. 1500 w. Prac Engr—Dec. 21, 1908. Serial. 1st part. No. 1200 A.


Parallel Operation of Stationary Transformers. H. Bewlay. Gives a method of calculating the loading of each transformer and an investigation of the probable errors. 800 w. Elec Wld—Nov. 21, 1908. No. 338.


Parallel Operation of Transformers. J. B. Gibbs. Shows the method of determining the division of the load between the transformers and the importance of attending to characteristics of transformers to be connected. 2000 w. Elec Jour—May, 1909. No. 4545.

Transformers

The Testing of Transformer Steel. M. G. Lloyd and J. V. S. Fisher. Discusses the conditions that should be realized, describing a modification of the Epstein method and apparatus, giving results obtained. 6500 w. Bul Burea of Stand—May, 1909. No. 6368 N.

The Testing of Transformer Steel. M. G. Lloyd and J. V. S. Fisher. Discusses the conditions which should be realized in the measurement of energy losses in sheet-iron and steel subject to alternating magnetization, describing a modification of the Epstein method and apparatus. 6000 w. Pro Am Inst of Elec Engrs—July, 1909. No. 6600 F.

Discussion on "Testing of Transformer Steel." The paper by M. G. Lloyd and J. V. S. Fisher is discussed at Frontenac, N. Y. 2500 w. Pro Am Inst of Elec Engrs—Oct., 1909. No. 8535 F.

Corona Phenomena in Air and Oil and Their Relation to Transformer Design. W. S. Moody and G. Facelli. Describes experiments made, showing the complex nature of the study. Ills. 5800 w. Pro Am Inst of Elec Engrs—July, 1909. No. 6485 F.

Discussion on "Corona Phenomena in Air and Oil and Their Relation to Transformer Design." The paper of W. S. Moody and G. Facelli, as discussed at Frontenac, N. Y. 2500 w. Pro Am Inst of Elec Engrs—Oct., 1909. No. 8538 F.

Oil Used in Electric Transformers. W. B. Kowwenhoven. Explains the purpose for which the oil is used, the care needed, and the qualities required. 2000 w. Ry & Loc Engng—April, 1909. No. 3657 C.

See also Transformer Testing, and Dynamo Testing, under Measurement; and Insulators, and Substations, under Transmission.

Troubles.
Lessons from Some Recent Electrical Troubles. Cites a number of accidents due to improper operation. 1700 w. Elec Wild—Dec. 5, 1908. No. 810.


Underground.

Underground Cable and Service Distribution, Edison System. Ralph W. Krass. Deals with the underground installations of the various systems, and describes the method of connection with overhead feeders for outlying districts. 2500 w. Sib Jour of Engng—Dec., 1908. No. 1352 C.

See also Conduits, under Transmission.

Voltage.

Voltage Losses.


Voltage Regulation.
Conditions Affecting Stability in Electric Lighting Circuits. Elihu Thomson. Discusses mainly the constant-current series circuits containing arc lamps, reviewing the methods tried during the last 30 years to obtain stability. 7500 w. Pro Am Inst of Elec Engrs—Jan., 1909. No. 1362 F.


ELECTRICAL ENGINEERING

Voltage Regulation


See also Losses, under Transmission.

Wire Joints.


Wire Specifications.


MISCELLANY

Accidents.


Agriculture.


Aluminium.

Atmospheric Electricity

A. Montpellier. Discusses the production of aluminium and its physical properties, and enumerates the important aluminium transmission lines in existence. Ills. 3200 w. Elecn—Aug. 14, 1909. No. 7929 D.

See also same title, under MINING AND METALLURGY, MINOR MINERALS.

Atmospheric Electricity.


Calculating Device.

An Electrical Device for Solving Equations. Describes the device presented by Alexander Russell and Arthur Wright to the Physical Society of London, which can solve equations to the nth degree, besides performing other calculations. 1000 w. Elec Wild—July 15, 1909. No. 6337.


Conversion Tables.

Horse-Power and Kilowatts. Gives tables for changing horse-power into watts and vice versa, with explanation. 1700 w. Power—April 20, 1909. No. 4051.

Electrical Industry.


Electric Clocks.

The Present Status of Electric Clocks (Uber den gegenwärtigen Stand der elektrischen Uhren). W. Krejza. A gen-

ments of railway time service and the advantage of electric clocks. 2500 w. Glasers Ann—June 15, 1909. No. 6589 D.


Electric Hygrometer.


Electric Piano-Players.

The Development of the Electric Piano Player. John F. Kelly. Reviews work in this field since 1850, especially describing the players now made by the Teleelectric Co. Ills. 3500 w. Jour Fr Inst—Jan., 1909. No. 1847 D.

Electric Pianos.

Electric Pianos (Pianos électriques). Georges Dary. Illustrated description of their mechanism and electrical connections. 3000 w. L'Elec—June 5, 1909. No. 6533 D.

Electromagnets.

The Weiss Laboratory Electromagnet and the Cotton Absolute Electromagnetic Balance (Elektromagnete für Labora-


Exhibitions.


Fire Alarms.


Fire Risks.

Electricity and Fire Hazards, Noel Murray. Abridged paper read before the Elec. Assn. of Victoria, Australia. States the principal causes of electrical fires. 3500 w. Aust Min Stand—Dec. 9, 1908. No. 1896 B.
General Electric Co.

Pioneer Developments Within the General Electric Company. Dr. E. W. Rice, Jr. Read before the Schenectady Sec. of the Am. Inst. of Elec. Engrs. Historical review from the year 1886, when the American Electric Co. was formed, to 1888. 5000 w. Pro Am Inst of Elec Engrs—March, 1909. No. 3476 F.

Germany.


High-Frequency Apparatus.


Montreal.


Nickel Alloys.


Problems.

The Technical and Social Problems of the Distribution of Electrical En.rgy (Il Problema tecnico e sociale della Distribuzione di Energia elettrica). C. Coltri. Refers particularly to conditions in Italy. Serial, 1st part. 3000 w. Industria—Nov. 29, 1908. No. 1135 D.

 Resistances.


Time Signals

Review of 1908.


Spark Coils.


Standardization.


Symbols.


Time Signals.

INDUSTRIAL ECONOMY

Accidents


Accounting

Some Recent Changes in Government Accounting. H. Parker Willis. Gives representative examples of each of the important classes of changes introduced during Mr. Roosevelt's term of office, as illustrative of the new point of view adopted. 8000 w. Jour of Acc—April, 1909. No. 4337 C.


Electric Manufacturing Companies' Accounts. Discusses matters in connection with the affairs of such companies, outlining a system. 2000 w. Elec Rev, Lond—Dec. 18, 1908. No. 1392 A.


The Machine Hour. F. E. Webner. The first of a series giving details of accounting plans as applied in the works of the Marion Steam Shovel Co. The present number deals with the antecedents and development of the and the hour idea. 3000 w. Ind Engng—April, 1909. Serial. 1st part. No. 4076 C.

Distribution of Indirect Costs by the Machine Hour Method. Gershom Smith. Outlines the application of the machine hour to the distribution of indirect cost, to determine correct rates. 3500 w. Engineering Magazine—June, 1909. No. 4987 B.


Industrial Accounting (Les Techniciens de la Comptabilité). Maurice Bellon. Discusses the training of accountants in various countries. Serial. 1st part. 5000 w. Tech Mod—April, 1909. No. 4832 D.


Accounting


See also same title, under MINING AND METALLURGY, MINING.

Alaska.


Apprenticeship.

Apprenticeship Training. The report of C. W. Cross to the Master Mechanics' Assn. on the progress made in the apprenticeship systems for railroad shops. 3000 w. Boiler Maker—Nov., 1908. No. 204 C.

Practical Results from a Modern Apprenticeship System. C. W. Cross. Concerning results obtained from the apprenticeship system of the New York Central lines. Also discussion. 6500 w. Pro Ry Club of Pittsburgh—Sept. 25, 1908. No. 204 C.


See also same title, under RAILWAY ENGINEERING, MISCELLANY.

Argentina.


Austria.

Cost of Engineering Materials and Labor in Austria. Editorial, giving authentic figures concerning the cost of labor and engineering materials in different districts. 1700 w. Engng—Feb. 5, 1909. No. 2489 A.

Conservation.

See Natural Resources, under INDUSTRIAL ECONOMY.

Co-partnership.

Co-partnership and Unemployment. Sir Benjamin C. Browne. Reviews some of the schemes that have been tried. 3000 w. Engr, Lond—Dec. 4, 1908. No. 1021 A.

Co-partnership and Unemployment. George N. Barnes. A reply to the article by Sir Benjamin C. Browne, putting forth the labor view of the subject. 3000 w. Engr, Lond—Jan. 8, 1909. No. 1822 A.

Cost Systems.


A Simple Cost System for Complex Situations. John Sturgess. Outlines systems that failed and the reasons, and describes a system enabling accurate costs to be obtained at moderate expense. 3000 w. Engineering Magazine—March, 1909. No. 2784 B.


Foundry Costs. B. A. Franklin. Presents a system in operation that not only gives the cost of a casting, but shows the variation of the elements of manufacture.
INDUSTRIAL ECONOMY

Cost Systems

2500 w. Am Found Assn—June, 1909. No. 5605 N.


Systematic Foundry Operation and Foundry Costing. C. E. Knoeppeh. This third article of a series enumerates and classifies the elements entering into production costs. 5000 w. Engineering Magazine—Dec., 1908. No. 677 B.

Systematic Foundry Operation and Foundry Costing. C. E. Knoeppeh. This fourth article of a series discusses the apportionment of various elements to production. 4000 w. Engineering Magazine—Jan., 1909. No. 1329 B.

Systematic Foundry Operation and Foundry Costs. C. E. Knoeppeh. This fifth article of a series deals with apportioning costs to production in various classes of work. 4500 w. Engineering Magazine—Feb., 1909. No. 2156 B.

Systematic Foundry Operation and Foundry Costs. C. E. Knoeppeh. This sixth article of a series deals with foundry organization and management. 3500 w. Engineering Magazine—March, 1909. No. 2786 B.


See also Cost Keeping, under CIVIL ENGINEERING, CONSTRUCTION; Cost Keeping, under ELECTRICAL ENGINEERING, GENERATING STATIONS; and Management, and Time Keeping, under INDUSTRIAL ECONOMY.

Depreciation.


Repairs, Renewals, Deterioration and Depreciation of Workshop Plant and Machinery. James Edward Darbishire. Suggestions for a system which shall provide for proper upkeep and replacement. 3300 w. Inst of Mech Engrs—Oct. 16, 1908. No. 18 N.


Education.


The Progress of Engineering Education. Robert W. Rogers. Gives an outline of the history of the development of structural engineering from its beginning to the present day. 7500 w. Sibley Jour of Engng—April, 1909. No. 5104 C.


The Value of the Classics in Engineering Education. Charles P. Steinmetz. Considers the study of the classics important and valuable to engineers. 1500 w. Pro Am Inst of Elec Engrs—July, 1909. No. 6492 F.

Some Comments on Our Engineering Education and the Men It Produces. Abstract of a lecture by W. D. Taylor before the Engng. Club of the Univ of Illinois, and repeated at the Univ. of Wisconsin. 9000 w. Wis Engr—April, 1909. No. 5687 D.


Present Tendencies in Technical Education. Frederick E. Turneaur. Extract from presidential address to the Soc.
for the Promotion of Engng. Education. Deals with the technical training needed. 1500 w. Eng News—July 1, 1909. No. 6689.


Three Years of the Co-operative Courses. Herman Schneider. Reports the satisfactory operation of these engineering courses at the University of Cincinnati. 4000 w. Am Mach—Vol. 32. No. 36. No. 7700.


Training in the Engineering Trades in Philadelphia. Henry W. Spangler. Discusses present conditions and opportunities, and the trade-school training that should be provided. 7000 w. Pro Engrs' Club of Phila—April, 1909. No. 7115 D.

The Education and Organization of Railway Engineering Labor. J. E. Muhl-
Industrial Economy

Education

The Training of Engineers. Inaugural address of Prof. Charles Frewen Jenkin delivered at Oxford Univ. 5000 w. Mech Engr—Nov. 13, 1908. No. 431 A.


University Degrees in Engineering. J. A. Fleming. Considers the requirements and object of engineering education, and how far they are being met by British universities. 3500 w. Engng—Jan. 8, 1909. No. 1821 A.


The Commercial Training of the Engineer (L'Instruction commerciale de l'Ingénieur). Maurice Bellom. Discusses the need for training engineers in economic principles, languages, etc. 3000 w. Génie Civil—Nov. 21, 1908. No. 1124 D.

The Education of a Marine Engineer. W. E. Dalby. Reviews marine educational systems, particularly in England 3500 w. Cassier's Mag—Nov., 1908. (Special No.) No. 389 D.

The Scientific Education of Naval Architects. Prof. J. J. Welch. Reviews what has been done to insure the proper training of the British naval architect, especially concerning the Admiralty systems. 9500 w. Trans N-E Coast Inst of Engrs & Shipbdrs—April, 1909. No. 4372 N.


Mining Education in the British Empire. Considers the education of working miners, of mine captains and managers, and of mining engineers, giving general conclusions. 5500 w. Min Jour—April 3, 1909. No. 3903 A.


Secondary Mining Schools in Austria. Herman Lücker. Explains the organization, method of support, and subjects taught in these schools, located in each mining district. 2000 w. Mines & Min—May, 1909. No. 4483 C.


The Hammond Mining and Metallurgical Laboratory of the Sheffield Scientific School, Yale University. Louis D. Huntoon. Illustrated detailed description of the building and its equipment. 4000 w. Bul Am Inst of Min Engrs—March, 1909. No. 3468 F.

The Hammond Mining and Metallurgical Laboratory. Louis D. Huntoon. Illustrates and describes the building and its equipment given by Prof. John Hays Hammond to the Sheffield Scientific
INDUSTRIAL ECONOMY

Education

School of Yale University. 2500 w. Yale Sci M—May, 1909. No. 4750 C.

Physical Chemistry and Electro-chemistry at the College of the City of New York. Leo Frank Guttman. Illustrated description of the laboratories and their equipment. 1500 w. Elec-Chem & Met Ind—April, 1909. No. 3663 C.


Lane Technical High School, Chicago. Explains the functions of this school, the studies and equipment, etc. Ills. 3500 w. Elec Wld—Aug. 26, 1909. No. 7354.


The University of Birmingham. Illustrated description of the mining equipment and training. 4000 w. Col Guard—April 23, 1909. No. 4458 A.

The Birmingham University. C. Alfred Smith. Illustrated description of the buildings and their equipment, especially the recent developments. Plate. 6000 w. Engng—July 2, 1909. Serial, 1st part. No. 6304 A.

The Engineering Equipment of Birmingham University. Describes the new laboratories largely devoted to the various branches of applied science. 3500 w. Engr, Lond—June 25, 1909. No. 6284 A.

The Engineering Department of the Victoria University, Manchester. Reviews the progress of engineering education at this university, and gives illustrated description of the new laboratories. 2500 w. Engng—July 16, 1909. No. 6684 A.


The Merchant Venturers’ Technical College, Bristol. Illustrates and describes the electrical equipment of the new building. 2500 w. Elect’n, Lond—July 30, 1909. Serial, 1st part. No. 6979 A.


Laboratory Instruction in Mechanical Engineering and the Laboratory of the Aachen Technical School (Der Laboratoriumsunterricht an Maschinenbauschulen und das Maschinenlaboratorium der Kgl. Höheren Maschinenbauschule zu Aachen). Herr Heim. Illustrated description of equipment. 4300 w. Zeitschr d Ver Deutscher Ing—Dec. 12, 1908. No. 2100 D.


The College of Engineering of the Tokyo Imperial University. B. Arakawa. An account of this college and its work. 1800 w. Sib Jour of Engng—June, 1909. No. 5808 C.

Imperial Railways of North China Engineering and Mining College, Tang Shan. Illustrated description of an institution regarded as an important center for the introduction of Western science in China. 1600 w. Engng—June 18, 1909. No. 6040 A.

See also same title, under MARINE AND NAVAL ENGINEERING.

Eight-Hour Day.

The Eight-Hour Day in Practice. Considers the probable effect of the English Act that goes into operation July 1st in the collieries. 2500 w. Col Guard—May 7, 1909. No. 4724 A.


Employers’ Liability.

Employers’ Liability for Accidents. Epaphroditus Peck. Extracts from an address before the Nat. Met. Trds. Assn Discusses possible changes in the existing
Engineering

The Status of the Engineering Profession. G. Allan Thomas. Prize paper. Outlines a scheme by which the engineering profession might be maintained on an equality with other professions. 4500 w. Soc of Engrs—Oct. 4, 1909. No. 8764 N.

Engineering Societies.


Experiment Station.

See Illinois Industries, under INDUSTRIAL ECONOMY.

Expositions.


The Nancy Industrial Exhibition, 1909 (Die Industrieausstellung in Nancy, 1909). Describes particularly the exhibits relating to the iron and steel industry. Ills. 3000 w. Stahl u Eisen—Aug. 18, 1909. No. 7952 D.

Filing Systems.


An Efficient Indexing System for a Civil Engineer's Office. Walter A. Brown. Describes a system evolved by the writer, similar in some respects to the decimal system designed by W. G. Taylor. 1500 w. Eng News—Sept. 2, 1909. No. 7538.


Engineering Ethics.

The Ethics of the Engineering Profession. Benjamin B. Lawrence. Considers some of the questions that arise in the profession of mining engineering. 1500 w. Sch of Mines Qr—July, 1909. No. 7894 D.

Engineering Opportunities.


Engineering Profession.


The Engineer as a Cultured Specialist. Alex. C. Humphreys. Address delivered at the inauguration of President Sparks, of Penn. State College. 3500 w. Stevens Ind—Oct., 1908. No. 485 D.

The Engineer and the Engineer's Society. G. E. Flanagan. Address of retiring chairman, reviewing briefly what engineers have done and are doing. 3000 w. Pro Engrs' Soc of W Penn—March, 1909. No. 3816 D.


Presidential Address before the Engineering Section of the British Association at Winnipeg, Sir W. H. White. Deals principally with the service engineers have rendered in the development of Canada. 10500 w. Can Engr—Sept. 3, 1909. No. 7547.
INDUSTRIAL ECONOMY

Filing Systems


See also Records, under STREET AND ELECTRIC RAILWAYS.

Finland.

The Development of the Industries of Finland. The first of a series of articles on the recent rapid development of Finland industries, reviewing earlier history. 4000 w. Engr, Lond—Sept. 3, 1909. Serial. 1st part. No. 7756 A.

Fire Loss.

See Natural Resources, under INDUSTRIAL ECONOMY.

Franchises.


Great Britain.


Illinois Industries.

The Engineering Experiment Station and Its Relation to Illinois Industries. L. P. Breckenridge. Explains the great resources of this state, outlining their development, and showing graphically and by charts the growth and general advancement. Also an illustrated account of the work of the engineering experiment station of the University of Illinois and its influence. Discussion. 12800 w. Jour W Soc of Engrs—Aug., 1909. No. 7423 D.

Industrial Betterment.


See also Welfare Work, under RAILWAY ENGINEERING, MISCELLANY; and Welfare Work, under MINING AND METALLURGY, MINING.

Industrial Districts.

The Centering of Great Industries in the New York Metropolitan District. Dr. Charles F. McKenna. Extracts from a paper at meeting of the Am. Inst. of Chem. Engrs. Gives statistics showing the importance of this district and discusses steps that would lead to the best development and advancement. 5000 w. Elec-Chem & Met Ind—Aug., 1909. No. 6822 C.

Industrial Legislation.


The Home Office and Ship-platers Wage Rates. Editorial on some of the disadvantages of hasty and ill-considered legislation when applied to commerce and industry. 1500 w. Engng—Sept. 24, 1909. No. 8366 A.

Some Medical and Insurance Problems Arising Out of Recent Industrial Legislation. Thomas Oliver. Some effects of the Workmen's Compensation Acts in Great Britain are discussed. 5000 w. Col Guard—Nov. 20, 1908. No. 736 A.

Industrial Museums.


Inland Navigation.


Inventions.

Salient Points for Inventors—Making and Preserving Records. John D. Mor-
INDUSTRIAL ECONOMY

Kashmir

See also Patents, under INDUSTRIAL ECONOMY.

Kashmir.

Kashmir. Concerning a proposed scheme for the industrial development of this beautiful valley of British India. 3000 w. Engr, London—Feb. 12, 1909. No. 2700 A.

Labor.


See also Nicaragua, under CIVIL ENGINEERING, MISCELLANY.

Labor Arguments.

The Shipbuilding Trades' Agreement. Text of the agreement made with the view of settling trade disputes without stoppage of work. Also editorial. 3000 w. Engng—Jan. 15, 1909. No. 2078 A.

Labor Insurance.


The Insurance and Pensioning of Employed in Austria. An examination of the three Austrian Acts of Parliament which deal with these matters. 4500 w. Engng—April 30, 1909. No. 4623 A.


Labor Unions.


Management.

The Basic Cause of Increased Efficiency. Walter M. McFarland. Argues that increased efficiency is to be obtained principally through the stimulation of the human element by rewards. 3000 w. Engineering Magazine—Dec., 1908. No. 668 B.

Efficiency as a Basis for Operation and Wages. Harrington Emerson. This sixth article of a series discusses the modern theory of cost accounting. 5000 w. Engineering Magazine—Dec., 1908. No. 669 B.

Efficiency as a Basis for Operation and Wages. Harrington Emerson. The location and elimination of wastes is discussed in this seventh article of a series. 3000 w. Engineering Magazine—Jan., 1909. No. 1333 B.

Efficiency as a Basis for Operation and Wages. Harrington Emerson. This eighth article of a series discusses the efficiency system in operation. 4000 w. Engineering Magazine—Feb., 1909. No. 2161 B.


Organization by Production Factors. A. Hamilton Church. This part of a series of articles on production costs, considers factors other than labor. 4500 w. Engineering Magazine—Oct., 1909. No. 8171 B.
INDUSTRIAL ECONOMY

Management

Organization by Production Factors. A. Hamilton. Church. This second article of a series discusses production factors as related to cost accounts and staff. 4500 w. Engineering Magazine—Nov., 1909. No. 8831 B.


The Importance of System in Manufacturing Enterprises. Oscar E. Perrigo. Shows the necessity of system, discussing conditions to be considered and giving helpful suggestions. 5500 w. Ir Trd Rev—Sept. 9, 1909. No. 7677.

Training Workmen in Habits of Industry and Co-operation. H. L. Gantt. Outlines a system discussing the application, obstacles, etc. 4500 w. Jour Am Soc of Mech Engrs—Mid-Nov., 1908. No. 652 F.


Staff Organization in Large Manufacturing Plants. W. H. A. Robertson. Points out inefficiencies due to indefiniteness of authority and the overlapping of duties. 1000 w. Ir & Coal Trades Rev—Nov. 6, 1908. No. 339 A.


Marine Transport


See also Accounting, Cost-Systems, Depreciation, Time Keeping, Wages, and Wage Systems, under INDUSTRIAL ECONOMY: Management, under RAILWAY ENGINEERING, MISCELLANY; Drafting Rooms, under MECHANICAL ENGINEERING, MACHINE ELEMENTS AND DESIGN; Shops, and Shop Practice, under MECHANICAL ENGINEERING, MACHINES WORKS AND FOUNDRIES: Steel Works, under MINING AND METAL-LURGY, IRON AND STEEL; and Management, under RAILWAY ENGINEERING, MISCELLANY.

Marine Transport.

Comprehensive Report on Waterway and Maritime Conditions Throughout
Marine Transport
Japanese Shipping and Ship-Building Subsidies. A discussion of the new law enacted by the Diet which makes the amount payable in subsidies less than during the past year or two. 1200 w. Engng—April 30, 1909. No. 4621 A.

Natural Resources
The “Conservation” Meeting of the National Engineering Societies. A report of the March 24th meeting of the four societies to consider questions in connection with the conservation of the natural resources. Condensed papers. 9000 w. Eng News—April 1, 1909. No. 3762.
The American Institute of Mining Engineers and the Conservation of Natural Resources. John Birkinbine. Discusses this subject, giving instances of progress already made and the aid given by the Institute discussions in promoting conservation. 2500 w. Bul Am Inst of Min Engrs—April, 1909. No. 4087 F.
Annual Address of the President. Hon. J. H. Richards. A discussion of natural resources and the waste in mining, indicating the work of the American Mining Congress. 4500 w. Pro Am Min Cong—1908. No. 4117 N.
Conservation of Mineral Resources. J. B. Zerbe. Remarks on the pressing need of attention to this subject, especially considering coal. 1200 w. Pro Am Min Cong—1908. No. 4133 N.
A Rational Basis for the Conservation of Mineral Resources. Joseph A. Holmes. Discusses the proper basis for such conservation, what may be accomplished, etc. 3000 w. Bul Am Inst of Min Engrs—May, 1909. No. 5003 F.
Forest Potentialities of the South. W. W. Ashe. Information concerning the value of the forest products, and their
INDUSTRIAL ECONOMY

Natural Resources


Electricity and the Conservation of Energy. Lewis B. Stillwell. Read at a joint meeting of Engineering Societies held in New York, March 24, 1909. Illustrates the function of electricity in the conservation of natural resources, summarizing the present power requirements in the United States, and the water power available, and related matters. Also discussion. 9000 w. Pro Am Inst of Elec Engrs—May, 1909. No. 4993 F.


The Conservation of the Resources of Minnesota. F. H. Bass. A discussion of some of the problems that must be solved by engineers in this connection. 3500 w. Minn Engr—March, 1909. No. 4062 C.

See also Incandescent Lamps, under ELECTRICAL ENGINEERING, LIGHTING; and Conservation, under MINING AND METALLURGY, COAL AND COKE.

Panama Canal.

See same title, under CIVIL ENGINEERING, WATERWAYS AND HARBORS.

Patents.


A Phase of the Patent Situation. James T. Barkelew. Suggests the adoption of a system of taxation, or compulsory working, or both, to correct the unfavorable conditions now existing. 2500 w. Elec Wld—March 18, 1909. No. 3227.


The Patent System in Its Relation to Industrial Development. Frederick P. Fish. Calls attention to some of the underlying principles of the United States patent policy, showing how they seem to work in practice. 10000 w. Pro Am Inst of Elec Engrs—May, 1909. No. 4998 F.


Inventing and Patenting—A Will o’ the Wisp. L. P. Alford. Gives results of an investigation which shows the average cost of a patent to be $570, and that less than one invention in four pays back the cost. 4000 w. Am Mach—Vol. 32, No. 31. No. 6894.


See also Western Railroad Association, under RAILWAY ENGINEERING, MISCELLANY.

Pension Systems.

A Pension System Embracing all Classes of Labor (Un Système de Réalisation possible de Retraites pour tous les Travailleurs). Léon Dargouge. Suggests an old-age pension system applicable to conditions in France. 3500 w. Rev d’Econ Indus—Aug. 16, 1909. No. 7900 D.

Peru.

The Resources of the Peruvian Andes and Amazon. C. Reginald Enock. An interesting description of this country, its natural resources and products. 7000 w.
INDUSTRIAL ECONOMY

Profit Sharing

Jour Soc of Arts—April 30, 1909. No. 4595 A.

Profit-Sharing.


Co-Partnership in Coal Mining. Describes the extension by Sir Christopher Furness of his co-partnership proposals from the ship-yards to the coal mining industry. 2700 w. Ir & Coal Trds Rev—May 28, 1909. No. 5410 A.

See also Co-Partnership, under INDUSTRIAL ECONOMY.

Public Utilities.


Purchasing.


Records.

See Record Systems, under CIVIL ENGINEERING, CONSTRUCTION.

Review of 1908.


Siberia.


Standardization.


Standardization and Its Influence on Engineering Industries. William Cawthorne Unwin. The substance of two lectures before students of the Inst. of Civ. Engrs. Discusses what is required, the advantages, etc. Ills. 14000 w. Inst of Civ Engrs—Vol. CLXXVII. Part III. No. 8164 N.


Stores Keeping.


See also Management, under RAILWAY ENGINEERING, MISCELLANY.

Strikes.

Employer's Insurance Against Strikes. Editorial on the conditions and the object of the Mutual Industrial and Commercial Fund which has been established in the North of France. 3000 w. Engng—Jan. 29, 1909. No. 2362 A.

Tariff.


Iron and Steel Duties in the Payne Tariff Bill. Discusses the significance of the more important changes. 3000 w. Ir Age—March 25, 1909. No. 3484.

The Payne Tariff Bill Passes the House. Gives the changes from the original draft. 3500 w. Ir Age—April 15, 1909. No. 3937.

The Senate Substitute Tariff Bill. Official text of the metal schedule of the Senate Finance Committee bill, reported to the Senate April 12. 8000 w. Ir Age—April 15, 1909. No. 3936.

The Metal Schedule as Revised by the Senate. The complete text of Schedule C of the new tariff bill, showing the changes the Senate has made in the Payne bill as passed by the House of Representatives. 9000 w. Ir Age—July 8, 1909. No. 6216.

Tariff

Tariff Duties Compared. A comparison of the metal duties in the Dingley act with those in the new law. Also other provisions of interest to the metal trades. 6000 w. Ir Age—Aug. 12, 1909. No. 7000.


A New Tariff for the Philippines. Gives the schedules covering metals and manufactures thereof and instruments, apparatus, machinery, vehicles, boats, etc. 3500 w. Ir Age—April 22, 1909. No. 4102.


Proposed New French Tariffs on Iron and Steel. Gives the important changes that have been recommended, with editorial comment. 3000 w. Ir & Coal Trds Rev—Feb. 5, 1909. No. 2496 A.

Technical Journalism.

Technical Journalism. Ray Morris. An address before the engineering students of the University of Michigan, explaining the growing importance of technical literature and the opportunities for engineers. 6500 w. R R Age Gaz—April 30, 1909. No. 4367.

Time Keeping.

Something New in Machine-Shop Time Keeping. Illustrates and describes a system where the data are telephoned to the office and recorded by aid of the calculating machine, without the workman leaving his machine. 1200 w. Am Mach—Vol. 31. No. 52. No. 1276.

See also Cost Systems, under ELECTRICAL ENGINEERING, GENERATING STATIONS.

172

Trusts.

The State and the Trusts (Staat und Kartelle). Hugo Bonikowsky. Discusses the proposal for state regulation of the trusts in Germany, with special reference to the "kartelle" in the iron industry. 5500 w. Stahl u Eisen—Dec. 9, 1908. No. 1941 D.

Unemployment.

The Role of State and Municipality in Unemployment Insurance (Du Rôle de l'Etat et des Communes en Matière d'Assurances contre le Chômage). Paul Vergasi. A general discussion of the problem, with description of a number of schemes being tried in France. 3500 w. Rev d'Econ Indus—May 16, 1909. No. 5701 D.

Unemployment and Its Insurance (Arbeitslosigkeit und Arbeitlosen-Fürsorge). Erich Böer. Discusses the problems of unemployment and describes a number of schemes for its relief...5600 w. Schiffbau—May 12, 1909. No. 5772 D.

Wages.


Rate Fixing Conzined to the fixing of rates in the molding and smithy department, and the erecting or assembling departments. 2000 w. Mech Wld—Jan. 8, 1909. No. 1814 A.

Wage Systems.


The Premium System of Paying Workmen. F. C. Blanchard. From a paper before the Nat. Metal Trds. Assn. Describes methods used in lighter manufacturing in the cases of both individual and
Wage Systems


A Double-Rate Premium Plan. H. F. MacLane. Briefly considers other wage systems, and describes and illustrates the double-rate plan. 3000 w. Am Mach—Vol. 32. No. 29. No. 6612.


See also Management, under RAILWAY ENGINEERING, MISCELLANY; and Car Maintenance, under STREET AND ELECTRIC RAILWAYS.
MARINE AND NAVAL

Admiral Melville

Admiral Melville.


Ammunition.

Smokeless Powder. Conclusions of the Commission appointed to investigate the disaster on the Jena. 2500 w. Engng—Oct. 30, 1908. No. 193 A.


Armor.


Armorclads.

The First Sea-Going Armorclads. An illustrated account of the rapid development of armorclad vessels, the first having been built only about fifty years ago. 4000 w. Int Marine Engng—Sept., 1909. No. 7615 C.

Barges.


Battleships.

The Design of Modern Warships. Prof. J. J. Welch. Outlines developments affecting warship design and some types of war vessels, tracing the progress and reviewing the principles underlying their design. Ills. 8500 w. Cassier's Mag—Nov., 1908. (Special No.) No. 385 D.

A Measure of the Values of Warships. Sidney G. Koon. An illustrated article discussing a comparative basis for the military value of naval vessels. 1500 w. Cassier's Mag—Nov., 1908. (Special No.) No. 395 D.

Monster Battleships. Sidney Graves Koon. Discusses the recent increase in size, especially the U. S. vessels of 26000 tons each, to be built at a cost of $9,500,-000 per vessel. 1500 w. Int Marine Engng—May, 1909. No. 4493 C.


The Turbine and Reciprocating Engine a Combination for Better All-Around Efficiency in Vessels of War. H. C. Dinger. Suggests a combined arrangement and presents the advantages and disadvantages. 3500 w. Jour Am Soc of Nav Engrs—Nov., 1908. No. 1890 H.


Types of Warships Omitted in Recent Programmes of Naval Construction. Lord Brassey. Read before the Inst. of Naval Archts. A brief discussion of the construction of battleships. 1500 w. Engng—April 2, 1909. No. 3906 A.
Marine and Naval Engineering

Battleships


Requisites of the Battleship Best Adapted to the Italian Navy and Consideration of Its Tactical Employment. Romolo Bernotti. Examines the desirable and possible requisites, describing the type of battleship and studying its employment. Ills. 2800 w. Pro U S Naval Inst—March, 1909. No. 3549 F.


Battleships (Navi da Battaglia). E. Ferretti. An examination into the conditions of their maximum efficiency in action, discussing armor, armament, speed and ability to manoeuvre. 10000 w. Riv Marit—July-Aug., 1909. No. 7236 E + F.


The Launch of H. M. S. “Vanguard.” Illustrations and information concerning this vessel, the seventh battleship of the Dreadnought class. 2500 w. Engng—Feb. 26, 1909. No. 3000 A.

The French Dreadnoughts. Illustrates and describes particulars of the constructive details, with critical remarks. 1500 w. Engr, Lond—April 30, 1909. No. 4627 A.


The Speed Trials of the Deutschland Class. Brief comparison of types and designs, especially of the German vessels. 800 w. Engr, Lond—April 23, 1909. No. 4465 A.


The Brazilian Battleship “Sao Paulo.” Illustrated detailed description. Plate. 1700 w. Engng—April 23, 1909. No. 4462 A.

British Navy.


The Future of Naval Engineering, Editorial discussion of the present situation in the British Navy, with the statement of the case as prepared for circulation to Members of Parliament. 4000 w. Engng—March 12, 1909. No. 3419 A.


Bulkheads.

Notes on the Strength of Steel Watertight Bulkheads. Athole J. Murray. Considers the problem of finding the necessary size, character and end fixing of the stiffeners. Plates. 3300 w. Trans N E Coast Inst of Engrs & Shipbdrs—May, 1909. No. 5657 N.

Cable Steamers.

The Telegraph Ship “Telconia.” Illustrations, with short description, of a new cable-repairing vessel. 1000 w. Elect’n, Lond—July 16, 1909. No. 6670 A.

Capstans.


“Clermont.”

Launch of the Reproduced “Clermont” of Robert Fulton. An illustrated account of the ceremonies and a descrip-
“Clermont”


See also Steam Engines, under MARINE AND NAVAL ENGINEERING.

Colliers.


Communication.

Transmission of Intelligence on Steam Vessels. H. A. Hornor. Considers only the present means of interior communication for the safe manipulation of the vessel and accommodation of passengers, officers and crew. Ills. 8000 w. Jour Pr Inst—June, 1909. No. 5805 D.

Compass Deviation.


Deviation of the Compass Aboard Steel Ships and its Avoidance and Correction. L. H. Chandler. A statement of the general mathematical principles involved with illustrations from the results obtained aboard the vessels of the U.S. battleship fleet. Plates and tables. 16500 w. Soc of Nav Archts and Marine Engrs, No. 6—Nov., 1908. No. 265 N.

Compasses.

Improvements in Ship’s Compasses. Explains disturbances of the compass due to the use of so much iron in ships and other causes, and the efforts made to solve the problem. Also recording apparatus for showing the course of the ship 2000 w. Sci Am Sup—Oct. 2, 1909. No 8213.

Condensers.

Steam Condensing Plant for Cargo Steamers. D. B. Morison. Illustrates and describes recent improvements. 2500 w. Cassier’s Mag—Nov., 1908. (Special No.) No. 401 D.

Cruisers.


The French Armored Cruiser Ernest Renan. Illustrated detailed description of the largest vessel of her type in the French navy. 3000 w. Engr, Lond—Sept. 3, 1909. No. 7757 A.

The Siamese Revenue Cruiser. Illustrated description of a vessel to be used for the suppression of the practice of opium and fire-arms smuggling in Siam. 700 w. Engn—Jan. 15, 1909. No. 2077 A.

Derricks.

Mast and Derrick Mountings. Illustrated descriptions. 1000 w. Int Marine Enng—July, 1909. No. 6076 C.
Destroyers


Torpedo-Boat-Destroyers for the Brazilian Navy. Plate and illustrated detailed description of these vessels. 2500 w. Engng—March 12, 1909. No. 3418 A.

Brazilian Torpedo-Boat Destroyers. Illustrated description of these vessels and their equipment. 3500 w. Engr, London—July 2, 1909. No. 6309 A.

Dockships.


Dockyard Administration.


Dredges.


Simons’ Clay-Cutting Reclamation Dredges. Illustrates and describes powerful dredges used in the Port of Bombay, with report of their work. 1500 w. Engng—Sept. 3, 1909. No. 7749 A.


The Dredger Leviathan. Drawings and particulars of the largest dredger in the world. 2200 w. Engr, London—April 2, 1909. No. 3913 A.

The 10,000-Ton Suction Dredger “Leviathan” for Use on the Mersey. Illustrated description of the most powerful dredges yet placed in operation. 1700 w. Sci Am—Nov. 6, 1909. No. 9079.


Dry Docks.


Education.


See also same title, under INDUSTRIAL ECONOMY.
Electric Power


Ferryboats


Electrical Installations on Steamships. H. T. Boothroyd. Read before the Liverpool Engng. Soc. Explains the difficulties to be overcome and the special features, wiring practice, etc. 3500 w. Mech Wid—Aug. 20, 1909. Serial, 1st part. No. 7432 A.

Extended Uses of Electricity on Board Ship. John McLaren. Abstract of paper before the Inst. of Marine Engrs. Shows the great saving that can be effected by installing a suction-gas plant and alternator for supplying electrical energy for operating the auxiliaries. 9000 w. Elec Engr, Lond—Sept. 10, 1909. No. 7855 A.

Engines


Explosives


Ferryboats


A Unique Ferryboat. Illustration, with brief description of an elevating vehicular ferry steamer for service in Glasgow harbor. 600 w. Int Marine Engng—Jan., 1909. No. 1598 C.

Ferryboats

International Steam Ferries. Information in regard to the new direct steam-ferry connection inaugurated between Sweden and Germany. 1500 w. Engng—July 9, 1909. No. 6266 A.

Ferry Boats for Kiel Harbor. Illustrated detailed description. 800 w. Int Marine Engng—April, 1909. No. 5685 C.

Danish State Railway Ferries. Harold M. Olsen. An outline of the construction and the services performed by this type of vessel. IIIa. 4000 w. Inst of Engrs & Shipbdrs in Scotland—March 23, 1909. No. 3866 N.

The Car Ferries of the Danish Government. Axel Holm. Information in regard to the government ferry fleet, illustrating and describing some of the ferries. 2500 w. Int Marine Engng—April, 1909. No. 3681 C.

I. The Swedish State Railway Ferry Steamer "Malmo." II. Danish State Railway Steam Ferry "Christian IX." Illustrates and describes those two vessels as types of those used in the service between Sweden and Denmark. 1600 w. Engng—July 23, 1909. No. 6850 A.

See also Train Ferries, under RAILWAY ENGINEERING, Motive Power and Equipment.

Ferry Steamers.

Train-Ferry Steamer "Fabius" for Northern Nigeria. Illustrated description of a 3-ft. 6-in. gauge railway train-ferry steamer. 1400 w. Engng—Oct. 1, 1909. No. 8400 A.

The Danish Railway Ferry "Prins Christian." Illustrated description of this large steel steamer and its equipment. 1500 w. Engng—Sept. 10, 1909. No. 7865 A.

Fire Boats.


Centrifugal Pump Fire Boats. Charles C. West. Gives the result of a test made on the first of two 9,000-gallon boats just delivered to the city of Chicago. Plates. 1700 w. Soc of Nav Archts & Marine Engrs, No. 14—Nov., 1908. No. 273 N.


Fishing Boats.


Floating Cranes.

Twin-Screw Floating Cranes. Illustrates and describes cranes recently built for the Argentine Government. 1500 w. Engng—Nov. 13, 1908. No. 445 A.

Description of a 140-Ton Floating Crane with a Test Capacity for Lifting 200 Tons. H. Prime Kever. Illustrates and describes a new and interesting type built at Duisburg, Germany. 1400 w. Int Marine Engng—Dec., 1908. No. 750 C.

French Marine.

The Crisis in the French Marine. A discussion of the country's naval decline as revealed by the recent investigation of M. Picard. 3000 w. Engr, Lond—May 14, 1909. No. 4966 A.

French Navy.


Fuel Contracts.

The Choice and Control of Fuel Supplies by Steamship Companies. John B. C. Kershaw. Aims to show how the customary clause in steamship companies fuel contracts can be replaced by one affording greater protection. 2000 w. Engr, Lond—Aug. 20, 1909. No. 7483 A.

Fulton.


Gas Engines.

Gas vs. Steam for Marine Motive Power. A. B. Willits. Discusses the present standing of the suction-gas producer and gas engine, showing that until changes are made, it will be unavailable for high-power marine work. 12000 w. Pro U S Naval Inst—Dec., 1908. No. 1334 F.

Gas Engines


Adaptability of Producer Gas for Marine Work. E. Shackleton. Read before the Inst. of Marine Engrs. Outlines a scheme for large vessels from 4000 to 5000 tons gross. 2500 w. Int Marine Engng—Feb., 1909. No. 2264 C.


Gas Engine and Equipment for the Non-Magnetic Yacht “Carnegie.” Jas. Craig, Jr. Describes a special four-cylinder vertical engine with 11 x 12 cylinder containing less than 500 lbs. of iron or steel and made of non-magnetic materials. 1100 w. Rudder—June, 1909. No. 5333 C.


See also Motor Boats, under MARINE AND NAVAL ENGINEERING.

Gasoline Engines.


See Yachts and Life Boats, under MARINE AND NAVAL ENGINEERING.

German Navy.

The Naval Policy of Germany, Its Progress and Aims. Count Ernst von Reventlow. An illustrated review of the progress and aims of the German sea power. 6000 w. Cassier’s Mag—Nov., 1908. (Special No.) No. 388 D.

Grain Elevators.


“Great Eastern.”


Guns.


“Half Moon.”

The Half Moon. An illustrated article discussing the design of this vessel, and giving detailed description. 3500 w. Rudder—Sept., 1909. No. 7650 C.

The Half Moon. Brief illustrated description of the vessel which brought Henry Hudson into New York harbor three hundred years ago. 1200 w. Int Marine Engng—Sept., 1909. No. 7610 C.

Hendrick Hudson’s Half Moon Reproduced. Illustrations and information concerning this vessel of the early part of
MARINE AND NAVAL ENGINEERING

Hospital Ships


Hospital Ships.

Boston Floating Hospital. Illustrated description of a vessel equipped with the indirect system of refrigeration and ventilation. 1200 w. Ice & Refrig—March, 1909. No. 3022 C.

Hudson-Fulton


See also "Clermont" and "Half Moon," under MARINE AND NAVAL ENGINEERING.

Hydroplanes.


"Hydroplanes" or "Skimmers." Sir John L. Thornycroft. Deals with boats in which high speeds are heavier than the water they displace. 2200 w. Engng—March 12, 1909. No. 3421 A.

Experiments With Hydroplanes or Skimmers. Illustrated account of results obtained by Sir John Thornycroft. 1500 w. Sci Am—June 12, 1909. No. 5397.

Hydroplane or Skimming-Boats. Brief account of the Thornycroft boat and results obtained with it. 1200 w. Engng—July 23, 1909. No. 6853 A.


Hydroplanes or Skimmers. Sir John Thornycroft. Read before the Engng. Sec. of the British Assn. at Winnipeg. A report of the writer's experiments, illustrating models used. 2200 w. Engng—Sept. 3, 1909. No. 7751 A.


Ice Breakers.


International Competition


Internal-Combustion Engines.

Internal Combustion Engines for Marine Purposes. Sir John L. Thornycroft. An illustrated article showing the increasing use of gas power for propulsion. 2500 w. Cassier's Mag—Nov., 1908. (Special No.) No. 402 D.


Marine Motors at Olympia. An illustrated review of exhibits. 3000 w. Engng—March 26, 1909. No. 3789 A.

See also Gas Engines, Gasoline Engines, Motor Boats and Steam Turbines, under MARINE AND NAVAL ENGINEERING.

International Competition.

The Contest for Ocean Supremacy. Lawrence Perry. An account of preparations by German steamship companies to build faster ships than any now afloat,
Launching

and the probability of still faster British liners. Ills. 6000 w. World’s Work—Nov., 1908. No. 28 C.

Launching.


Lifeboats.


Life-Saving Appliances.

Novel Life-Saving Apparatus. A cylindrical cage built of rope ladder is anchored by iron hoops and described. It is simple in design and operation and has been adopted by the German Admiralty. 700 w. Sci Am—Feb. 13, 1909. No. 2400.

Lightships.


Marine Transport.


Britain’s Place in the World’s Shipping. Editorial review of information from a recent issue of Lloyd’s Register, which shows that in respect to volume, and high-speed, and large capacity ships Britain holds the most prominent place. 1200 w. Engng—July 23, 1909. No. 6851 A.

Motor Boats


Model Basins.

The Development and Present Status of the Experimental Model Towing Basin. Reviews the steps that led to the establishment of these tanks, and describes existing tanks and their operation. 2000 w. Int Marine Engng—Jan., 1909. No. 1600 C.


The Management and Equipment of an Experimental Tank. Discusses the general arrangement of such tanks, their equipment, etc. 4500 w. Engr, Lond—July 16, 1909. Serial, 1st part. No. 6687 A.

Model Basins (Einführung in Schiffsmodell-Versuchsanstalten). A. Schromm. Brief notes on existing model basins, their cost, methods of investigation, etc. 2600 w. Oest wochenschr f d Oeffent Baudienst—July 10, 1909. No. 7456 D.


Motor Boats.

MARINE AND NAVAL ENGINEERING

Motor Boats


Power Boats and Power Boating in the Pacific Northwest. R. M. Haddock. Illustrated descriptions of types in use in a field especially suited to power boat usefulness. 3500 w. Rudder—May, 1909. No. 4590 C.


See also Gas Engines, under MARINE AND NAVAL ENGINEERING; and Ignition, under MECHANICAL ENGINEERING, AUTOMOBILES.

Oil Economy

Practical Oil Economy of the U. S. S. Rhode Island. M. S. Holloway. Description of methods by which remarkable economy was secured in cruise around the world. Ills. 2100 w. Jour Am Soc of Nav Engrs—May, 1909. No. 5436 H.

Oil Engines


See also Ferryboats and Fishing Boats, under MARINE AND NAVAL ENGINEERING; and Oil Engines, under MECHANICAL ENGINEERING, COMBUSTION MOTORS.

Oil Fuel

Oil Burning on Board Ship. Andrew Laing. An illustrated discussion of the importance and practicability of the use of liquid fuel. 3000 w. Cassier’s Mag—Nov., 1908. (Special No.) No. 394 D.

Oil Fuel for Naval Use. H. C. Dinger. An illustrated description of the mechanical system of an oil installation, examining the advantages and disadvantages, and matters related to its economy and use. 7000 w. Jour Am Soc of Nav Engrs—Feb., 1909. No. 4059 H.


Oil vs. Coal as a Marine Fuel. G. P. Blackiston. Explains the conditions and the need of proper heating and burning appliances to make oil fuel successful, and claims decided advantages if properly used. Ills. 8000 w. Prac Engr—May 21, 1909. No. 5188 A.

See also Steamships, under MARINE AND NAVAL ENGINEERING.

Ordnance

Naval Ordnance. A. Trevor Dawson. An illustrated study of modern naval artillery. 4500 w. Cassier’s Mag—Nov., 1908. (Special No.) No. 397 D.

Ore Carriers


Paddle Boats

Porbydrometers


Port Holes.


Progress.

Advances in Marine Engineering. James Denny. Abstract of presidential address at the Inst. of Marine Engineers. 4000 w. Mech Engr—Nov. 6, 1908. No. 307 A.

Propellers.


The First Steam Screw Propeller Boat. Abstract of an article by Francis B. Stevens in the Stevens Indicator. Describes the steam screw propellers of Col. John Stevens, in operation on the Hudson River from 1802 to 1806. 1500 w. Int Marine Engrg—Sept., 1909. No. 7612 C.


Further Propeller Analysis. Clinton H. Crane. Outlines the method used. Plates. 400 w. Soc of Nav Archts & Marine Engrs, No. 5—Nov., 1908. No. 270 N.

Recent Screw-Propeller Design. Notes the important investigations made of the efficiency of screw propellers, discussing features of design demanding attention to meet recent conditions. Ills. 2000 w. Int Marine Engng—Jan., 1909. No. 1596 C.


The Maximum Elementary Efficiencies as a Basis for the Construction of the Pitch of the Screw Propeller (Die maximalen elementaren Wirkungsgrade als Grundlag für die Konstruktion der Steigung der Schraubenpropeller). W. Hel ling. Ills. 3200 w. Schiffbau—May 12, 1909. No. 5771 D.


Screw Propeller Criticism and Notes on Screw Propeller Design Based on Actual Standardization Trial Results of U.S. Vessels. C. W. Dyson. 11500 w. Jour Am Soc of Nav Engrs—Feb., 1909. No. 4060 H.

Propulsion of Vessels by Contrary Turning Screws. G. Rota. Read before the Inst. of Naval Archts. Shows the possible increase in efficiency by the use of contrary turning screws on a common axis. Ills. 1800 w. Engng—April 9, 1909. No. 4035 A.

The Villinger Reversible Propeller. Illustrated description of a design that appears to be a practical success. 1200 w. Engng—Feb. 26, 1909. No. 3066 A.


See also Steam Engines, under MARINE AND NAVAL ENGINEERING.

Propulsion.

The Advance of Marine Engineering in the Early Twentieth Century. Arthur J. Maginnis. Reviews the rapid progress in the adoption of the steam turbine for
Refrigeration

marine propulsion. Discusses the electric drive, liquid fuel, internal-combustion engines. 6000 w. Inst of Mech Engrs—July, 1909. No. 7090 N.

Refrigeration.


Repair Ship.


Resistance.


Review of 1908.


Rudders.

Clyde Rudders and Rudder Posts. Sketches and descriptions of general practice. 1800 w. Int Marine Engng—Nov., 1908. No. 5 C.

Salvage Vessels

Safety Devices.

Safety of Travel on the Modern Ocean Liner. E. A. Stevens. An illustrated account of important safeguards to human life recently fitted to ships. 2500 w. Am Rev of Revs—March, 1909. No. 2918 C.

Sailing Vessels.


Salvage.


Raising Standard Oil Barge No. 91. Illustrated detailed description of the methods used to raise this vessel which sank: just inside the Columbia River bar. 1500 w. Marine Rev—Aug., 1909. No. 7048.

The Salvage of the Steamer “Fleswick.” Illustrates and describes in detail methods used in raising a steamer sunk in Cork harbor, by using compressed air, pumped into the holds after making them air-tight. 2500 w. Engng—July 30, 1909. No. 6985 A.

A Novel Salvaging Operation. Illustrated account of the methods used to bring the “Netherton,” injured by an explosion, from Singapore to England. 800 w. Sci Am Sup—Sept. 11, 1909. No. 7631.

Salvage Vessels.

An American Salvage and Repair Steamer. Illustrated description of the steamer “Favorite,” in use on the Great Lakes. It is of steel construction and built for heavy weather. 1000 w. Engr, Lond.—Feb. 5, 1909. No. 2492 A.

The French Submarine Salvage Boat Vulcain. Illustrated description of this specially designed vessel and its equipment. 500 w. Engr, Lond.—June 11, 1909. No. 5933 A.
Shipbuilding

Shipbuilding of Yesterday and To-day. George Leslie. Reviews the changes in material, design, and construction. 1500 w. Cassier's Mag—Aug., 1909. No. 7033 B.

America's Greatest Shipbuilding Establishment. Illustrated description of the plant of the Newport News Shipbuilding & Dry Dock Co. 2500 w. Naut Gaz—Nov. 12, 1908. No. 239.


The Works of Harland and Wolff, Limited, at Belfast. Illustrated description of these shipbuilding and engineering works, with illustrations of vessels built and their history. 16000 w. Engrs, Lond—June 18, 1909. No. 6048 A.


The Shipbuilding and Engineering Company of Burmeister & Wain. Axel Holm. Illustrated description of this plant at Copenhagen, Denmark. 1500 w. Int Marine Engrs—Nov., 1908. No. 2 C.


Ship Design


The Determination of the Dimensions of Building Slips (Die Bestimmung der Hellsgabmessungen für den Fall kostspieliger Hellinganlagen). Albert Lincke. Gives tables of averages showing the most satisfactory and useful proportions. Ills. Serial, 1st part. 4000 w. Schiffbau—Nov. 11, 1908. No. 1164 D.


The Scantlings of Steel Vessels. Gives Lloyds new rules for ships' scantlings, with explanatory statement, and editorial comment. 5000 w. Engrs—June 25, 1909. No. 6281 A.


See also Cableways and Cranes, under MECHANICAL ENGINEERING, TRANSPORTING AND CONVEYING; and Review of 1908, under MARINE AND NAVAL ENGINEERING.

Ship Cleaning.

The Electric Scrubber. Description of an electro-magnetic device for cleaning ships bottoms, whereby a "hoggine brush" is held firmly to the plates. Ills. 1350 w. Elec Rev, Lond—May 28, 1909. No. 5419 A.

Ship Design.

Modern Ship Design. Leslie Denny. Read before the Manchester Assn. of Engrs. Explains how the first rough estimate for a ship is prepared, the design being more fully worked out in the drawing office. 2500 w. Mech Engr—March 5, 1909. No. 3155 A.
Ship Design

A Note on Ship Geometry. Sir George Greenhill. Read before the Inst. of Naval Archts. Discusses geometrically the alteration in trim and draught due to loading and unloading, coaling and burning the coal, due to the movement of weight on board, and the change due to passage from fresh to salt water, or the reverse. 1500 w. Engng—April 16, 1909. No. 4393 A.


Relation of Size to Speed in Ships. Sidney G. Koon. Gives calculations made in connection with the design of a vessel for special requirements. 1000 w. Sci Am—Nov. 6, 1909. No. 5709.


Longitudinally Framed Ships. Illustrated detailed description of the "Craster Hall," a vessel built on the Isherwood system, with modifications. 5000 w. Engr, Lond—March 5, 1909. No. 3175 A.


Decrease in the Weight of Ships Through Change in the Regulations of the German Lloyd (Verminderung des Schiffsgewichts durch die Vorschriften des Germanischen Lloyd 1908). Fr. Jappe. Compares the old and new regulations with regard to the change in weight of certain parts of ships. Ills. 2500 w. Schiffbau—Dec. 9, 1908. No. 1961 D.


Ship Repairing


The Strength of Knees and Brackets on Beams and Stiffeners. Herman R. Hunt. An investigation of beams supported by knees at the ends. Tables and diagrams. 1500 w. Soc of Nav Archts & Marine Engrs, No. 7—June, 1909. No. 5661 N.


The Number of Shafts for Turbine Vessels. An investigation of the governing factors which decide the number of propelling shafts. 1500 w. Engng—Sept. 24, 1909. No. 8360 A.


See also Bulkheads and Steamships, under MARINE AND NAVAL ENGINEERING.

Ship Heating

The Heating of Modern Ocean Liners. W. Carlile Wallace. From a paper read before the Inst. of Naval Archts. Detailed discussion of systems used on a number of vessels, cost, etc, 3500 w. Int Marine Engng—Feb., 1909. No. 2259 C.


Ship Lighting.

See Ship Ventilation, under MARINE AND NAVAL ENGINEERING.

Ship Repairing.

Ship Resistance


Facilities for Repairing Ships in Italian Harbors (I Mezzi di Raddobbo per Navi esistenti nei Porti Italiani). Luigi Luiggi. Illustrates and describes the docking facilities of the more important harbors. 3000 w. Ann d Soc d Ing e d Arch Ital—Nov. 1, 1908. No. 1129 F.

Ship Resistance


Ship Rolling

The Dynamics of Rolling of a Ship. Sir G. Greenhill. An explanation of the mathematical theory of the motion of a ship, with remarks on the effect of design, storage of coal and cargo, etc. 2000 w. Engr, Lond—Dec. 11, 1908. No. 1219 A.

Ship Sanitation


Ship's Bottoms

Ship Vibrations


Ship Vibrations.

The Vibration of Ships. J. B. Henderson. Read before the Inst. of Naval Archts. Considers the elasticity of ships as deduced from experiments on the vibration of dynamical models. 4000 w. Engng—April 2, 1909. No. 3907 A.


Spanish Navy.

The New Spanish Navy. Editorial on the scheme laid out for the reinstatement of Spain among the naval powers of Europe. 2500 w. Engng—March 5, 1909. No. 3168 A.

Speed.

The Influence of the Depth of Water on Speed. A. F. Yarrow and W. W. Marioner. An illustrated article on the behavior of high-speed boats in shallow water. 2000 w. Cassier's Mag—Nov., 1908. (Special No.) No. 398 D.

Steam Boats.


Shallow-Draught River Steamers. C. E. Ward. Discusses in detail the peculiar character of river steamers, the hull, machinery and its performance, etc. Iills. 9600 w. Soc of Nav Archts & Marine Engrs, No. 4—June, 1909. No. 5810 N.

The Development of Western River Steamboats. T. M. Rees. Illustrations and descriptions of typical boats used since 1811. 2000 w. Int Marine Engng—Sept., 1909. No. 7613 C.


The "Robert Fulton." A Record in River Steamboat Construction. Illustrated description of this vessel which was launched in two months and ten days after the keel was laid. 1500 w. Sci Am Sup—April 10, 1909. No. 3840.

New Hudson River Steamboat, Robert Fulton. Illustrated detailed description of this fine new river passenger steamer, which was built in record time. 6000 w. Naut Gaz—June 17, 1909. No. 5609.


Shallow Draught Steamers for the Amazon. Illustrations and particulars of five vessels built to meet special conditions. 500 w. Engr, Lond—May 21, 1909. No. 5202 A.

See also Paddle Boats, under MARINE AND NAVAL ENGINEERING.

Steam Boilers.


Steam Boilers

Naval Boilers in Service. H. C. Dinger. A review of the relative advantages developed, repairs now necessary, and general economy of the various types of boilers on the vessels of the U. S. fleet that encircled the globe. Ills. 3300 w. Int Marine Engr.—May, 1909. No. 4495 C.


Steam Engines

The Development of the Modern Marine Engine. J. W. Reed. Illustrated description of the latest practice in the powering of steamships. 7500 w. Cassier's Mag—Nov., 1908. (Special No.) No. 393 D.

The Reciprocating Engine in Marine Practice and Its Probable Future. D. Gibson. Reviews the types of marine reciprocating engines now in use, and notes the considerations that determine the adoption of each type. Ills. 5000 w. Jour Am Soc of Nav Engrs—Feb., 1909. No. 4057 H.


Steam Engines

The Turbine and Reciprocating Engine for Naval Purposes. W. G. Diman. Examines the claims of the turbine and concludes that it has not yet shown enough advantage to warrant its taking the place of the reciprocating engine. 3000 w. Jour Am Soc of Nav Engrs—Feb., 1909. No. 4055 H.

The Comparative Weights of Reciprocating and Turbine Machinery for Marine Work. N. W. Greenway. Gives tabulated data showing the increased h. p. per ton of machinery weight in various classes of vessels, with discussion of the subject. 1000 w. Engng—Aug. 13, 1909. No. 7329 A.


Steam-Engine Pipe Arrangements. E. Herbert. A large marine engine is taken as an example to illustrate the arrangement of pipes, valves, connections, etc. 1200 w. Mech Wld—Aug. 13, 1909. No. 7321 A.


Steam Engines

The American Walking-Beam Engine. Illustrated description of the engine that has been the favorite for Hudson River steamboats. 2000 w. Sci Am—Sept. 25, 1909. No. 8060.

The Propelling Engines of H. M. Cruiser "Defence." Plate and description. 1000 w. Engng—Dec. 18, 1908. No. 1374 A.

Engines of the Steamship Graceful. Plate and illustrated description of engines for a quarter-deck type steel vessel designed for the coasting trade. The feature of particular interest is the condenser. 800 w. Engr, Lond—Oct. 1, 1909. No. 8927 A.


Steam Appliances

Steam Engineering.


Steam Competition.


Steamships.


The Design and Building of Modern Cargo Steamers. S. J. P. Thearle. States the requirements of such vessels, and describes methods of British shipbuilders, illustrating vessels in different stages of construction. 4000 w. Cassier's Mag—Nov., 1908. (Special No.) No. 386 D.

Some Recent Inventions as Applied to Modern Steamships. W. Carlile Wallace. Remarks on recent inventions that tend to increase safety and comfort of passengers. Plates. 5000 w. Soc of Nav Archts & Marine Engrs, No. 8—Nov., 1908. No. 267 N.


The Great Ore Carriers on the Great Lakes. James Cooke Mills. Illustrates and describes special methods of construction used. 2500 w. Cassier's Mag—Nov., 1908. (Special No.) No. 392 D.

Steam Collier or Ore Vessels Adapted for Belt Conveyor Discharge. Gives illustrated description of a new type of vessel in which the coal or ore is discharged by belt-conveyors. 1400 w. Ir & Coal Trds Rev—Jan. 29, 1909. No. 2373 A.

The Steam Collier "Pallion." Illustrated description of a collier equipped with twin-belt conveyors for discharging her cargo. 500 w. Engng—Aug. 27, 1909. No. 7658 A.


The Mallory Line Steamship Brazos. Sidney Graves Koon. Illustrated detailed description of this new steel twin-screw
Steamships

Steamer. 3500 w. Int Marine Engng—Dec., 1908. No. 749 C.


The Hamburg-American Line Steamer Cleveland. Illustrated description. 3500 w. Int Marine Engng—March, 1909. No. 3011 C.

The White Star Liner Megantic. Illustrated description. 600 w. Engr, Lond—Dec. 18, 1908. No. 1378 A.


The Italian Passenger and Emigrant Steamer “America.” Illustrated description of a vessel designed for the River Plate service. Only first and second class passengers are carried. Plate. 1000 w. Engng—Sept. 24, 1909. No. 8361 A.

Steamships

1000 w. Schiffbau—July 14, 1909. No. 7285 D.


The Triple-Screw, Turbine-driven Pacific Liner “Tenyo Maru.” Illustrated detailed description of this first of these sister ships for the Oriental Steamship Co. of Japan. 7500 w. Plates. Engng—Oct. 30, 1908. No. 195 A.


The Orient Company’s Australian Mail Liner “Otway.” Illustrations, with description of this new twin-screw vessel and its machinery. 3300 w. Engng—June 4, 1909. No. 5528 A.

The New Orient Liners. Describes large passenger steamship “Orsova” and other ships constructed for Orient Mail line for Australian service. Iills. 2500 w. Engr, Lond.—May 28, 1909. No. 5316 A.

The New Orient Australian Mail Liner “Orsova.” Illustrated description of the first of four vessels designed for service between Europe and Australia. “Orsova” is of 15,100 tons displacement and 18 knots speed. Plates. 5200 w. Engng—May 28, 1909. No. 5260 A.

The Orient Company’s Twin-Screw Liners “Otranto” and “Orvieto.” Illustrated detailed description of these Australian mail liners, recently completed. 3500 w. Engng—Oct. 29, 1909. No. 9183 A.


Fruit and Passenger Steamer “Tortuguero.” Illustrations and particulars of a recently built vessel for service between the West Indies and England, which possesses interesting systems of ventilation and refrigeration. 4000 w. Engr, Lond.—July 9, 1909. No. 6428 A.

See also Destroyers, Ore Carriers, Shipbuilding, Steam Engines and Steamships, under MARINE AND NAVAL ENGINEERING.

Steam Turbines.

Recent Developments in the Marine Steam Turbine. R. J. Walker. A review of progress in turbine propulsion in merchant and naval vessels. Iills. 2500 w. Cassier’s Mag—Nov., 1908. (Special No.) No. 400 D.


Turbines or Motors in Ships. Trans. from Nauticus. Compares the advantages and disadvantages of steam turbines and internal combustion engines. 13500 w. Jour Roy U S Inst—March, 1909. No. 3802 N.


Modern Turbine Installations in War Vessels. G. Bauer. Illustrates and describes the turbine systems installed and considers points in the preparation; discussing steam consumption, etc. Also discussion by Director Boveri. 12800 w. Jour Am Soc of Nav Engrs—Aug., 1909. No. 8088 H.


Marine Turbines (Les Turbines marines). A general article on their construction, installation and operation. Iills. 3000 w. Tech Mod—March, 1909. No. 4230 D.

Steam Turbines


Marine Steam Turbines. Discusses the application of turbines to merchant vessels, examining the advantages claimed, and showing the propeller to be the weak point in the turbine system. 4000 w. Engr, Lond—April 30, 1909. No. 4626 A.

The Manoeuvring Capabilities of Turbine-Driven Vessels. Shows how the turbine-driven vessel is manoeuvred in narrow tidal waterways. Diagram. 1800 w. Engng—April 23, 1909. No. 4460 A.

On the Adaptation of Steam Turbines for the Propulsion of Vessels at Moderate Speeds. Yasuzo Wadagaki. A study of this problem, with explanation of the system evolved by the author, discussing its advantages and disadvantages, and reporting experiments. Short discussion. Ills. 3000 w. Trans N-E Coast Inst of Engrs & Shipbdrs—July, 1909. No. 7024 N.


Submarines

The Turbines of the Battleship "North Dakota." Illustrated description of the Curtis turbines installed on this ship of the "Dreadnought" type. 1000 w. Sci Am—April 17, 1909. No. 3946.


See also Destroyers, Dockships, Steam Engines and Steamships, under MARINE AND NAVAL ENGINEERING.

Steering Gear.


Submarine Mines.


Submarines.

Submarine Naval Warfare. G. Laurenti. An illustrated review of the development of the submarine boat. 5500 w. Cassier's Mag—Nov., 1908. (Special No.) No. 403 D.


Marine and Naval Engineering

Submarines


Develop the Submarine! Edwin Swift Balch. A brief discussion of the naval problem of the present, and the importance of the submarines in harbor defense, urging the United States to follow the lead of Great Britain and France in the development of the submarine. 2500 w. Jr Fr. Inst—Aug., 1909. No. 7030 D.

Transportation of Submarines. W. J. Baxter. Describes an actual, successful and economical solution of the problem of over-sea transportation of submarines. 4 plates. 1000 w. Soc of Nav Archts & Marine Engrs, No. 17—Nov., 1908. No. 275 N.

The Italian Submersible Boat "Otaria." Brief illustrated description. 400 w. Engng—Jan. 1, 1909. No. 1707 A.


See also Dockships and Internal-Combustion Engines, under MARINE AND NAVAL ENGINEERING.

Submarine Signalling.


Superheating.


Survey Vessels.

Non-Magnetic Survey Yacht Carnegie. Henry J. Gielow. Illustrated description of this vessel, being built for use in ocean surveys to determine the magnetic conditions of deep-water seas. 2500 w. Rudder—May, 1909. No. 4501 C.


Tank Steamers.


Torpedo Boats.


Surface or Submarine Torpedo Boats. Brief discussion of their development, claims and performance. 2000 w. Engr, Lond—Nov. 13, 1908. No. 448 A.

Torpedoes.


The Automobile Torpedo in Coast Defense. Richmond P. Davis. Brief review of development, discussing its usefulness, the launching, sub-marine boats, etc. Ills. 2500 w. Jour U S Art—March-April, 1909. No. 3801 D.


The Testing of Automobile Torpedoes (Batterie des Maures, Ilot artificiel de Lancement pour Essais de Torpilles automobiles). Michel-Schmidt. A detailed description of a launching station erected in Léouve bay, and the methods of
MARINE AND NAVAL ENGINEERING

Torpedo Testing


Torpedo Testing.


Torpedo Battery in the Mediterranean. Illustrated detailed description of the French experimental station at Léoube Bay, with related information. 4000 w. Engr, Lond—April 23, 1909. No. 4467 A.

The Schneider Torpedo-Testing Station. Illustrations and description of a proving station, on the French coast, for testing automobile torpedoes. 4000 w. Engng—Aug. 6, 1909. No. 7104 A.

Torsion Meters.

See same title, under MECHANICAL ENGINEERING, MEASUREMENT.

Towing.

Towing Problems. Thomas S. Kemble. On determining the requirements arising from given towing conditions, and the manner in which a towing machine and cable of given size will meet the requirements. Ills. & diagrams. 5000 w. Soc of Nav Archts & Marine Engrs, No. 8—June, 1909. No. 5085 N.

Tugs.

A Large Sea-Going Tug. Illustrated description of the “Mary F. Scully,” built at Staten Island. 1200 w. Int Marine Engng—Feb., 1909. No. 2262 C.

U. S. Merchant Marine.


United States Navy.

A Short Account of Legislative Action in regard to the United States Navy up to the War of 1812, and Notes Concerning the Histories of Naval Vessels During That Period. A. Farenholz. 7000 w. Pro U S Naval Inst—Dec., 1908. No. 1337 F.

The Engineering Question in the United States Navy. Critical discussion of the abolition of the bureau system and the control of engineering work by the naval constructor. 4000 w. Engineering Magazine—March, 1909. No. 2783 B.

Amateur Reorganization in the United States Navy. Criticism of recent changes, especially discussing the effect in navy yards. 4000 w. Engineering Magazine—April, 1909. No. 3522 B.

The Reorganization of the Naval Establishment. J. A. Mudd. Discusses the proper place of the industrial and commercial forces in any reorganization scheme. 1500 w. Pro U S Naval Inst—March, 1909. No. 3548 F.


“Victory.”


Yachts.


Warships.

Early War Steamers. Illustrates and describes the early steam-propelled vessels engaged in warfare. 2500 w. Int Marine Engng—Sept., 1909. No. 7614 C.


Wave Pressures.


Wrecking Vessel.

MECHANICAL ENGINEERING

AUTOMOBILES .......................... 197
Combustion Motors ....................... 212
Heating and Cooling ...................... 220
Hydraulic Machinery .................... 228
Machine Elements and Design .......... 234
Machine Works and Foundries .......... 241
Materials of Construction .............. 267
Measurement ........................... 275
Power and Transmission ............... 281
Steam Engineering ...................... 290
Transporting and Conveying .......... 314
Miscellany ............................ 320

Acetylene Generators

Acetylene Generators.

Adams.

Adler.

Albion.

Argyll.
The 12-14 h. p. Four-Cylinder Argyll. Illustrated detailed description of a medium-priced car, with report of an officially observed run over the Scottish trials course. 3000 w. Autocar—July 17, 1909. No. 6661 A.

Armstrong-Whitworth.
The 18-22 H.P. Armstrong-Whitworth Car. Illustrated detailed description of the latest model of these cars. 1200 w. Auto Jour—March 20, 1909. No. 3596 A.

Austin.
Austin Pullman Landaulet. Illustrations with brief description of an entirely enclosed car. 300 w. Autocar—March 20, 1909. No. 3606 A.

Axles.
Bevel-Geared Live Back Axles for Motor Cars. Discusses important points in their design, methods of construction, certain defects, and related matters. Iils. 4000 w. Engng—Nov. 6, 1908. Serial, 1st part. No. 322 A.

Brakes

The Section of Fixed Axles for Motor Cars. Compares the advantages of the various sections now used, studying the stresses. 1500 w. Engng—March 5, 1909. No. 3163 A.


Babcock.

Belsize.

Benz.

Berliet.

Bodies.

Brakes.

The Pulling-Up Powers of a Car. Reports some actual tests with the brakes of modern motor vehicles. Iils. 1600 w.
Brass Founding


Brass Founding.


Brixia-Zust.


Brush.


B. S. A.

The B. S. A. Cars. Illustrated description of the two models made. 1200 w. Autocar—Oct. 31, 1908. No. 172 A.

Bugatti.

The Bugatti Automobile (Automobiles Bugatti), A. Heller. Illustrated description of this car built by the Gasmotorenfabrik at Deutz. 2000 w. Génie Civil—Nov. 7, 1908. No. 1122 D.

Cabs.


Cadillac.


Carburettors.


The Flow of Liquid Fuel Through Carburettor Nozzles. Robert W. A. Brewer. Reports a series of investigations made to show how it becomes an easy matter to ascertain the size of carburettor orifice to satisfy the conditions of cylinder and carburettor dimensions, and to point out some interesting problems in connection with the carburettor. Plates. 5500 w. Soc of Engrs.—Nov. 2, 1908. No. 283 N.


What to Do When the Carbureter Won't Work. Morris A. Hall. An illustrated discussion of sources of troubles and the remedies. 3500 w. Automobile—April 22, 1909. No. 4144.


The Zenith Carburettor. Illustrated description of an automatic carburettor for which the designers claim that absolute self-regulation is obtained without the introduction of auxiliary air or the use of any moving parts. 1800 w. Auto Jour—Jan. 30, 1909. No. 2342 A.


Chalmers-Detroit


Clutches.

See same title, under MACHINE ELEMENTS AND DESIGN.

Commercial Vehicles.

Recent Developments in Motor Vehicles for Industrial Purposes. Harry Wilkin Perry. Illustrates and describes some of the adaptations to special uses. 6000 w. Engineering Magazine—Dec., 1908. No. 671 B.


Commercial Vehicles

AUTOMOBILES

The Commercial Truck vs. the Horse. Benjamin Rogers. Information in regard to expense of operation, advantages, etc. 1500 w. Sci Am—Jan. 16, 1909. No. 1775.

On the Subject of Commercial Vehicle Bodies. Morris A. Hall. Illustrated discussion of the causes which determine the type of body fitted to machines for carrying freight or passengers. 3000 w. Com Veh—Aug., 1909. Serial, 1st part. No. 6874 C.


Automobile Fire Apparatus (Feuerwehrautomobile). Illustrated description of German models of hose wagons, ladder trucks, etc. 3500 w. Zeitschr d Mit Motorwagen-Ver—Nov. 15, 1908. No. 1175 D.

Motor Ambulances (Automobil-Krankenwagen). Illustrated description of German models. 2200 w. Zeitschr d Mit Motorwagen-Ver—Nov. 15, 1908. No. 1173 D.

International Commercial Vehicle Competition of the Austrian Automobile Club in 1908 (Internationale Lastwagenkonkurrenz des Oesterreichischen Automobilclubs im Jahre 1908). Johann Trnovsky. Describes the vehicles entered, the tests and the results. Ills. Serial, 1st part. 4400 w. Oest Wochenschr f d Oeffent Bandienst—March 6, 1909. No. 4282 D.

The International Commercial Vehicle Competition (Die internationale Motorlastwagen-Wettbewerb und die Subventionsfahr der Verkehrstruppen). Describes the competing cars and gives results of the trials. Ills. Serial, 1st part. 3600 w. Zeitschr d Mit Motorwagen Ver—May 15, 1909. No. 5776 D.


The “Stae” Electric Automobile (Carri elettrici “Stae”). Describes various types of heavy electric trucks built at Turin, Italy. Ills. Serial, 1st part. 2000 w. Elettricita—March 18, 1909. No. 4239 D.

See also Omnibuses and Tractors, under AUTOMOBILES; and Street Cleaning, under CIVIL ENGINEERING, MUNICIPAL.
MECHANICAL ENGINEERING

AUTOMOBILES

Darracq


De Dion

The 12-14 h. p. Four-Cylinder De Dion Car. Illustrated description of a model designed after general De Dion practice. 1800 w. Autocar—Sept. 11, 1909. No. 7847 A.

Dennis


Design


Progress in Car Design. Some illustrated notes of the mechanical details of the historical cars at Shepherd's Bush. 1600 w. Autocar—Sept. 18, 1909. No. 8105 A.

The Peculiar Requirements of Peculiar Countries. A symposium of opinions of the conditions under which motor cars must be used. The present article deals with Canada and the Federated Malay States. 1800 w. Autocar—May 1, 1909. Serial, 1st part. No. 4600 A.


Immunity from Side-Slip. Illustrated description of the "Safety" chassis, a practical development of the live front axle. 2000 w. Auto Jour—April 24, 1909. No. 4443 A.

See also Shop Practice, under MACHINE WORKS AND FOUNDRIES.

Driving

How to Drive a Motor Car. The first of a series of articles giving practical hints on the driving of motor vehicles. 4500 w. Auto Jour—Oct. 31, 1908. Serial, 1st part. No. 173 A.

Some Pertinent Hints for the American Autoist. Calls attention to important points to be considered by autoists. 2500 w. Automobile—Dec. 10, 1908. No. 917.

Dust Problem


Electric


The Relations Between Central Stations and the Electric Automobile. A summary of replies to questions sent out, giving data in regard to the charging of electric vehicles. 9500 w. Elec Wd—Aug. 5, 1909. No. 6003.


Electric AUTOMOBILES

Motor-Car Exhibition at Olympia. Illustrates and describes interesting exhibits of pleasure cars and accessories. 1500 w. Engr, Lond—Nov. 20, 1908. Serial 1st part. No. 743 A.


Explosions.

The Danger of Explosion in Automobiles (Zur Frage der Explosionsgefahr bei Automobilen). Herr Effenberger. Discusses the explosions to which the automobile is liable and means of lessening the dangers, giving results of tests. Ills. 5500 w. Zeitschr d Mit Motorwagen-Ver—Nov. 15, 1908. No. 1174 D.

Farm Motors.

A Machine of Absorbing Interest to Farmers. Illustrated description of a "hay-buck," invented by Jacob E. Liebhart. The machine is propelled by an automobile engine, and may perform all its functions with the assistance of two men. 1200 w. Automobile—June 10, 1909. No. 5503.


See also Tractors, under AUTOMOBILES.

Fire Apparatus.

New American Motor Fire Apparatus. Illustrated descriptions of extension ladder, hose wagons, etc., fitted with motors. 1200 w. Com Vehicle—Nov., 1908. No. 46 C.


Motor Fire Apparatus in Hamburg (Feuerwehr-Automobile in Hamburg). Describes a number of recent vehicles.
MECHANICAL ENGINEERING

Fire Engines

Ills. 3100 w. Zeitschr d Mit Motorwagen Ver—Sept. 30, 1909. No. 8672 D.

See also under COMMERCIAL VEHICLES.

Fire Engines.


France.

The Automobile Crisis in France (La Crise automobile en France). E. Girardault. Discusses the causes and probable results of the present unsatisfactory state of the automobile industry. Ills. 3300 w. Génie Civil—Dec. 19, 1908. No. 1930 D.

Fuels.


Automobile Gasolene Involves Complex Problems. Thomas J. Fay. Discusses automobile fuel, the composite character of the gasolene used, some peculiarities, etc. Ills. 2500 w. Automobile—April 8, 1909. No. 3826.


See also Coking Py-Products, under MINING AND METALLURGY, COAL AND COKE.

Fuel Storage.

The Storage of Combustible Liquids (Die Lagerung f uer gefahrlicher Flüssigkeiten). Discusses the precautions necessary in handling and storing combustible liquids and describes appliances for the purpose. Ills. 6000 w. Oest Wochenschr f d Öffent Baudienst—Dec. 5, 1908. No. 1975 D.

Garages.

The Electric Garage. S. P. Read. Read before the Pacific Coast Elec. Vehicle Assn. Discusses the necessity of an electric garage where electric vehicles are used, the requirements, arrangements, costs, etc. 1500 w. Elec Rev, N Y—April 3, 1909. No. 3748.


Gasoline-Electric.

Gasoline Electric Automobiles. Justus B. Entz. Briefly reviews systems in which the prime mover is a gasoline engine, and electricity used as a supplementary power, especially describing the Entz electric transmission system. Ills 3000 w. Jour Fr Inst—July, 1909. No. 6355 D.

Gasoline Meter.


Gears.


Which is Better: Three or Four Speeds? Louis Lacoine. Gives the changes on the chassis needed for the fourth speed, and discusses its advantages in saving fuel and time. Ills. 2500 w. Automobile—April 15, 1909. No. 3970.

Treatment of Gears for Automobile Motors and Transmissions. Harold Whiting Slauzon. Illustrates and describes the
Gear Testing


The Bosch Magnetic Igniter. Illustrated description of this system. 1500 w. Auto Jour—Dec. 12, 1908. No. 1098 A.


MECHANICAL ENGINEERING

Imperia

Assn. Explains what has been accomplished in the manufacture of dry batteries and the applications where they have proved satisfactory. 4500 w. Gas Engine—Aug, 1909. No. 7021.

See also Lighting, under AUTOMOBILES.

Imperia.


Inspection.


Itala.


Jackson.


Knox.

1910 Knox Pleasure Cars. Interesting details are illustrated and described. Engines water-cooled, aluminum crank case, etc. 2500 w. Automobile—July 29, 1909. No. 6779.

Laboratories.

Laboratory in Automobile Making. Thomas J. Fay. Considers some of the requirements in a laboratory, the testing necessary, and the general utility of such a laboratory. Ills. 3000 w. Automobile—Sept. 16, 1909. No. 7795.

Lamps.


Lanchester.

The New Wheel-Steering Lanchester Car at Olympia. Illustrates and describes a 6-cylinder vehicle equipped with wheel steering and gate control. 1700 w. Auto Jour—Nov. 28, 1908. No. 849 A.

Lancia.

The Lancia Petrol Cars at Olympia. Illustrated description of these Italian touring cars. 1200 w. Auto Jour—Nov. 14, 1909. Serial, 1st part. No. 422 A.

Lighting.

The Lancia Car: A 15-h. p. four-cylinder, and 30-h. p. six-cylinder engined chassis are described and illustrated. 1400 w. Autocar—Nov. 7, 1908. No. 300 A.

Laurin-Klement.


Light Cars.


Lighting.


Fog-Penetrating Head-Lamps. Illustrated description of the "Sylverlyte" electric system of burying a lamp in a lens. 1200 w. Auto Jour—May 1, 1909. No. 4597 A.


The Bleriot Lighting and Charging Dynamo. Illustrates and describes a machine for supplying current to the car lamps and for ignition purposes. 1500 w. Autocar—May 15, 1909. No. 4939 A.


"Rushmore" Headlamps and Generators. Illustrates and describes features of these lamps and generators. 2500 w. Auto Jour—Sept. 4, 1909. No. 7725 A.
**MECHANICAL ENGINEERING**

**Lubrication**

An All-British Electric Plant for Car Lighting. Illustrated description of a complete ignition and lighting system, with an ingenious constant voltage (Leitner) dynamo. 2000 w. Auto Jour—May 15, 1909. No. 4941 A.

See also Acetylene Generators, under AUTOMOBILES.

**Lubrication.**


See also, Motor Lubrication, under AUTOMOBILES.

**Martini.**


**Mass.**

The 1909 Mass Petrol Cars at Olympia. Illustrates and describes the interesting features of these cars. 1200 w. Auto Jour—Nov. 14, 1908. No. 420 A.

**Maudsley.**


**Maxwell.**


**Metallurgic.**

A Long-Stroke Twenty-Six. An illustrated description of the latest four-inch metallurgic. 1500 w. Auto Jour—July 31, 1909. No. 6964 A.

**Metallurgique.**


**Moline.**

Moline Model “M” 1910. Information concerning these high-grade cars, selling at $1500. 1700 w. Automobile—Sept. 23, 1909. No. 8040 A.

**Mora.**

One 1910 Mora “Light Four.” Illustrated description of a four-cylinder chassis to be constructed by this Newark firm. 2000 w. Automobile—Sept. 9, 1909. No. 7705.

**Motobloc.**


**Motor Balancing.**


**Motor Cooling.**


Winter Troubles with Cooling Water. States the properties of a satisfactory cooling medium, considering the solutions at present used. 2500 w. Automobile—Nov. 19, 1908. No. 370.

Non-Freezing Solution for Radiatora J. E. Stacey Jones. Practical tests and recommendations. 1600 w. Autocar—Nov. 14, 1908. No. 423 A.


An Experiment in Air-Cooling. Illustrated description of the system of E. H. Morgan, which induces a draft through the cylinder jackets by the action of the exhaust, and increases the radiation in hot places by coating them with a chemical. 1200 w. Auto Jour—May 8, 1909. No. 4666 A.

Cooling Automobile and Aeronautical Motors (Die Kuhlung der Automobil und Flugmotoren). F. Erneiste. Illustrated description of a large number of arrangements for air and water cooling. Serial, 1st part. 6000 w. Zeitschr d Mit Motorwagen Ver—March 31, 1909. No. 4277 D.

**Motor Control.**


Motor Efficiency.


Motor Exhausts.


Motor Governing.


Motor Lubrication.


The Lubrication of Petrol Motors. Explains the conditions of the problem, and describes systems used. Ills. 2500 w. "Engng—June 18, 1909. No. 6043 A.

See also, Lubrication, under AUTOMOBILES.

Motor Power.


Motor Rating.


The Horse-power of Petrol Engines. C. F. Dendy Marshall. Explains the steps leading to the rating formula —-

1200 w. "Autocar—Sept. 18, 1909. No. 8106 A.

Motor.


Combustion Motors of Large Power Per Unit of Weight (Les Moteurs a Mélange tonnant à grande Puissance masique). M. G. Lumen. Discusses the factors which influence the relation between weight and power and gives the results of some tests carried out by the Automobile Club of France. Ills. 6000 w. Mem Soc Ing Civ de France—Oct., 1908. No. 1304 G.


A Five-Cylinder Engine and Gearless Car. Section and description of the invention of A. Gore, with explanation of how he has been able to make forced induction a success. 2200 w. Autocar—July 31, 1909. No. 6966 A.


See also Benzine Motors, under COMBUSTION MOTORS; Piston Rings, under MACHINE ELEMENTS AND DESIGN; Shop Practice, under MACHINE WORKS AND FOUNDRIES; and Cast Iron, under MATERIALS OF CONSTRUCTION.

Motor Starting.

Self Starting Devices. Illustrates and briefly describes the important features and methods of operation of the principal self-starting devices now in use. 2200 w. Automobile—April 1, 1909. No. 3679.

Motor Testing.


See also Daimler, under AUTOMOBILES.

Motor Tests.


N. A. G.


Napier.

The 1909 Napier Petrol Cars at Olympia. Illustrated description of the 30 h. p. 6-cylinder model. 1200 w. Auto Jour—Nov. 7, 1908. No. 297 A.

A 6-Cylinder Car for the Colonies. Illustrates and describes the leading features of the 30 h. p. Napier. 1000 w. Auto Jour—Aug. 21, 1909. No. 7427 A.

Omnibuses.


Progress in the Construction of Motor Omnibuses and Heavy Motor Trucks (Fortschritte im Bau von Motoromnibus- und schweren Motorlastwagen). A.


Pumps. See Radiators, under AUTOMOBILES.


Road Trains. The Renard Road and Rail Transport Corporation, Limited. A letter giving a report of trials in India. 2500 w. Min


Shock Absorbers


Shock Absorbers (Les Amortisseurs). E. Girardault. Description and discussion of various types. Ills. Serial, 1st part. 4000 w. All Indus—June, 1909. No. 6543 D.

Siddeley.


Six-Cylinder 20-Horse-Power Siddeley Motor-Car. Illustrated detailed description of car for the Olympia exhibition. 1800 w. Engng—Nov. 6, 1908. No. 324 A.

Six-Wheeled.


Sixaire-Naudin.


Sleighs.


Speed Changing.


Speed Indicators.

A Tip Concerning Speedometer Equipment. Suggests a direct-drive, oil-bath, open-scale arrangement. Ills. 1500 w. Auto Jour—May 1, 1909. No. 4598 A.


See also Speed, under ELECTRICAL ENGINEERING, MEASUREMENT.

Speedwell.

1909 Speedwell. Illustrated detailed description, calling attention to recent improvements. 1500 w. Automobile—Feb. 11, 1909. No. 2439.

Springs.


Springs (Des Resorts). M. Marchesseau. Mathematical discussion of the design of automobile springs. 2300 w. All Indus—Feb., 1909. No. 3327 D.

Standardization.


Stanley.


Stearns.


Steering.


Steering Gears.


Stevens-Duryea.

MECHANICAL ENGINEERING

AUTOMOBILES

Straker-Squire


Sunbeam.

The New 12-16 h. p. Sunbeam. Illustrated description of a live-axle car with 80 x 120 m. m. four-cylinder engine and four speeds. 1500 w. Autocar—Oct. 16, 1909. No. 8855 A.

Talbot


Testing.


Tire Pressures.

Effect of Speed on Tire Pressures. Charles B. Hayward. Explains the effect when a tire punctures under ordinary and under high speed conditions. Ills. 2200 w. Automobile—June 10, 1909. No. 5502 A.

Tires.

True Story of the Automobile Tire. H. S. Firestone. A brief account of methods of gathering rubber and preparing it for use, the combination with cotton in making tires, etc. Ills. 1400 w. Automobile—Feb. 11, 1909. No. 2438.


About the Auto’s Indispensable Footwear. Suggestions from a book by C. A. Shaler relating to care, repairs, etc. 2500 w. Automobile—Dec. 17, 1908. No. 1030.

The Manufacture and Care of Tires (Das Wichtigste über den Kauchuk, die Fabrikation und Pflege der Pneumatik). Dr. K. Dieterich. Shows the importance of the tire problem and the advantages and defects of rubber as a tire material. 4500 w. Zeitschr d Mit Motorwagen Ver—April 15, 1909. No. 5053 D.

Detachable and Demountable Rims Discussed. Hermann F. Cuntz. Discusses what is being done in this field as a solution of the problem of quickly replacing tires. 1100 w. Automobile—Jan. 21, 1909. No. 1897.


Our Legion Tires and Their Troubles. Orrel A. Parker. Discusses types of tires and their troubles, the effect of proper and improper driving, the importance of selecting tires suitable for the kind of service, etc. Ills. 4000 w. Sci Am—Jan. 16, 1909. No. 1777.

Automobile Pneumatics at the Paris Road Congress (Der Automobilpneumatik auf dem Pariser Strassenkongress). Herr Krastel. Reviews the discussions on the effect of high-speed automobiles on roads, etc. Ills. 2600 w. Motorwagen—Jan. 10, 1909. No. 2803 D.


The Alley Tyre Manipulator. Illustrated description of a device for facilitating the dismounting and fitting of tires. 1000 w. Autocar—Dec. 5, 1908 No. 1004 A.

The Hall and Baynes Detachable Rim. Illustrated description of a device for facilitating speedy tire changes. 700 w. Autocar—March 13, 1909. No. 3401 A.

Thomas.

Thomas Flyer Model “M” 6-40 Touring Car. Illustrates and describes the latest model of the Thomas cars, which will have long-stroke motor. 2200 w. Automobile—Aug. 19, 1909. No. 7156.

MECHANICAL ENGINEERING

Traction Engines

**AUTOMOBILES**

Wheels


**Tractor-Misesse.**

The Turner-Misesse Steam-Car. Illustrated description of a car claiming economy, safety, absence of vibration and easy control. 1800 w. Engng—July 2, 1909. No. 6305 A.

**Valve Grindings.**


**Valveless.**


**Vauxhall.**


**Vulcan.**


**Westinghouse.**


**Wheels.**


The Sizes of Wheels in Motor Vehicles. Discusses the considerations which determine the size of wheels used in various vehicles, and the effect of size on effi-
MECHANICAL ENGINEERING

Wheels

Combustion Motors

Fuels

Ils. 5000 w. Génie Civil—July 10, 1909. No. 7230 D.

White.


White Cars for 1910 Include a Gasoline. Illustrates and describes the new features of the 1910 models; the most important being the modifications which make possible the use of kerosene or gasoline as fuel. 1500 w. Automobile—June 17, 1909. No. 5587.

See also Motor Tests, under Automobiles.

Winton.


Wolseley-Siddeley.


Aeronautical.

See Motor Cooling, under Automobiles; and Gasoline Engines, under Combustion Motors.

Alcohol Storage.

4,000 Cubic Metre Alcohol Storage Tank at Delsberg, Switzerland (Spiritusbehälter von 4,000 m³ Inhalt der Eidg. Alkoholverwaltung Depot Delsberg). Illustrated description. 1500 w. Schweiz Bau—Aug. 21, 1909. No. 7971 B.

Benzine Motors.


Carburetters.

A New Automatic Carburetter. Illustrated description of the design known as the Polyshoe carburetter. 700 w. Engr, Lond—Oct. 8, 1909. No. 8943 A.

COMBUSTION MOTORS

Compression.


Constant-Pressure.

A Constant-Pressure Internal-Combustion Engine. H. B. Stilz. Reviews the theory of these engines and gives an illustrated description of a design by the writer. Also editorial. 6000 w. Eng News—April 22, 1909. No. 4159.

Exhaust Gases.

See Exhaust-Gas Heating, under Heating and Cooling.

Fuels.


Tests of the Comparative Efficiency of Gas, Gasoline and Alcohol as Fuel in Internal Combustion Engine. Condensed from a thesis for the degree of Bachelor
MECHANICAL ENGINEERING

COMBUSTION MOTORS

Gas Engine Compression.


Gas Engine Design.


Gas Engine Efficiency.


Gas-Engine Governing.


Gas-Engine Indicators.


Gas-Engine Lubrication.

See Engine Lubrication, under STEAM ENGINEERING.

Gas Engines.


Large Gas Engines. P. R. Allen. Abstract of a lecture at the Imp. Int. Ex.,
MECHANICAL ENGINEERING

Gas Engines


Recent Improvements in the Internal-Combustion Engine. H. E. Wimperis. A summary of what has been accomplished, stating the problem and the lines along which its solution has been attempted. 2000 w. Nature—Aug. 5, 1909. Serial, 1st part. No. 7080 A.

Large Gas Engines (Les Moteurs à Gaz de grandes Puissances). M. L. Letombe. Discusses the design of various types, their application, etc. Ills. 1800 w. Mem Soc Ing Civ de France—Dec., 1908. No. 3302 G.


On Heat-Flow and Temperature—Distribution in the Gas-Engine. Bertram Hopkinson. An experimental investigation into the temperatures reached by the hotter parts of a gas-engine of considerable size, the conditions which determine them, and the circumstances in which pre-ignition may be caused by hot metal. Also abstract of discussion. 26000 w. Inst of Civ Engrs—No. 3799. No. 8165 N.


Increasing the Efficiency and Capacity of Large Gas Engines by Cooling the Charge. F. E. Junge. Comments on the results of Prof. Junker's investigations to ascertain the influence of charge temperature. 1000 w. Power—Feb. 2, 1909. No. 2189.

A Method or Improving the Efficiency of Gas Engines. Thomas E. Butterfield. An account of experiments made to show the effect of dilution of charge with inert gas. 3000 w. Jour Am Soc of Mech Engrs—April, 1909. No. 3965 F.


The Producer Gas and Gas Engine, with Special Reference to the Down-
Gas Engines


100 Horse-Power Horizontal Gas Engine. Illustrated description of the latest model of a single-cylinder gas engine built by the National Gas Engine Co., Ltd. 800 w. Engr, Lond.—Nov. 13, 1908. No. 454 A.


The Influence of Large Gas Engines on Steel-Works Development (Einfluss der Grossgasmaschine auf die Entwicklung der Hüttenwerke). A. Bonte. A general review of the use of gas power in steel works with special reference to Germany. 5000 w. Zeitschr d Ver Deutscher Ing—Nov. 28, 1908. No. 1197 D.

Westinghouse Gas Engines at Gary. Illustrates and describes the mechanical and operative features of the No. 3 gas-driven blowing plant of the Indiana Steel Co. 6000 w. Ir Age—March 4, 1909. No. 2030.


Suction Gas-Engines at the Royal Agricultural Show. Illustrations, with description. 500 w. Engng—June 18, 1909. No. 6045 A.


See also same title, under MARINE AND NAVAL ENGINEERING; Gasoline Engines, under COMBUSTION MOTORS; Refrigeration, under HEATING AND COOLING; Pumping Engines, under HYDRAULIC MACHINERY; Crank Shafts, under MACHINE ELEMENTS AND DESIGN; Gas vs. Steam, under POWER AND TRANSMISSION; Central Stations and Isolated Plants, under ELECTRICAL ENGINEERING, GENERATING STATIONS; Coke-Oven Gas, under MINING AND METALLURGY, COAL AND COKE; and Blowing Engines, under MINING AND METALLURGY, IRON AND STEEL.

Gas-Engine Testing.


See also Testing Laboratories, under MEASUREMENT.

Gas Metering.

Experiments on a Method of Measuring the Air- or Gas-Supply to Engines and Furnaces. Andrew George Ashcroft. Describes experiments made in connection with a series of tests on internal combustion engines. Ills. 1700 w. Inst of Civ Engrs—No. 3778. No. 2798 N.
Gasoline Engines.

RATING OF PETROL ENGINES. Considers the objects of having a rating rule, and the various suggestions for rating. 4500 W. Engng.—June 25, 1909. No. 6278 A.

PROPORTIONS OF DIAMETER AND STROKE IN PETROL ENGINES. A discussion of what proportions give the lightest engine and the most convenient arrangement of parts. Ills. 2500 W. Engng.—Jan. 22, 1909. No. 2218 A.

FORMULAS AND TABLES FOR HORSE-POWER OF GASOLINE ENGINES. Morris A. Hall. With explanatory notes. 600 W. Mach, N Y.—April, 1909. No. 3648 C.

THE DESIGN OF CAMS FOR HIGH-SPEED MOTORS. Considers the type of valve-gear most general on petrol motors. 1500 W. Mech Wld.—Nov. 13, 1908. No. 429 A.

A VARIABLE STROKE PETROL ENGINE. Illustrates and describes a new variable stroke engine and direct drive, stating some of its advantages. 1000 W. Engnr, Lond.—Oct. 15, 1909. No. 8949 A.


FOREIGN AERONAUTIC MOTORS. Some of the latest light-weight gasoline engines for flying machines that have been brought out in Europe are illustrated and described. 3000 W. Sci Am Sup.—Feb. 13, 1909. Serial. 1st part. No. 2405.


LIGHT EXPLOSION MOTORS FOR DIRIGIBLE BALLOONS AND AEROPLANES (LES MOTEURS à EXPLOSION LÉGERS POUR DIRIGEABLES ET AÉROPLANES). Ch. Dantin. Discusses the requirements of an aeronautical motor and describes types. Ills. Serial, 1st part. 4000 W. Génie Civil—June 5, 1909. No. 6547 D.


See also same title, under MARINE AND NAVAL ENGINEERING; and CAMS, under MACHINE ELEMENTS AND DESIGN.

COMBUSTION MOTORS


GASOLINE TURBINES.

TEST OF A GASOLINE TURBINE (ESSAI D'UNE TURBINE À PÉTROLE). Alfred Barbezat. Describes the machine, its theory, the tests and the significance of their results. Ills. 2200 W. Schweiz Bau—Jan. 16, 1909. No. 2659 B.

GAS POWER PLANTS.

SUCTION GAS PRODUCER POWER. L. P. Tolman. Deals with suction gas power plants in single units of 200 h.p. and smaller, and complete plants made up of a number of such units 1000 h.p. or larger. Ills. 4500 W. Cal Jour of Tech.—Jan., 1909. No. 2712.

POWER PLANT DESIGN FOR GAS POWER. H. R. Linn. Thesis for degree of Mech. Eng. at University of Ill., which discusses history, development and application of gas engines for power plants and design of plants. 8500 W. Indus Engng.—Oct. 15, 1909. No. 8575 B.


OPERATION OF A SMALL PRODUCER GAS POWER PLANT. C. W. Obert. Plan and description of a notable installation, including a 400-h. p. producer gas plant for the operation of refrigerating and electric machinery. 3500 W. Jour Am Soc of Mech Engrs—May, 1909. No. 4412 F.


GETTING THE MOST OUT OF GAS ENGINES. E. G. Tilden. Describes experiments with a small gas engine plant to produce increased economy. Also a heater for exhaust gases and circulating water. Ills. 700 W. Power—June 8, 1909. No. 5327.
### Gas Power Plants

- **A Small Producer-Gas Power Plant in a Watch Factory.** Describes a successful plant in Jersey City, N. J. 2800 w. Eng Rec—April 17, 1909. No. 4012.


- **Good Record by a Suction Producer and Hit-and-Miss Engine.** Wesley E. Mc Ardell. Describes experience with a producer plant where the producer paid for itself in a year. 1400 w. Power—June 8, 1909. No. 5325.

- **The Largest Coke-Oven Gas Engine Plant.** J. B. Von Brussel. Illustrates and describes how an up-to-date colliery is able economically to cover all its power requirements. 1000 w. Eng & Min Jour—June 12, 1909. No. 5478.

- **Utilizing Blast-Furnace Gases at Gary.** Describes a plant to be operated by gases formerly considered waste. 3000 w. Eng & Min Jour—Jan. 2, 1909. No. 1441.


- **A Notable Producer Gas Power Station.** Cecil P. Poole. Illustrated description of a railway and lighting plant at Charlotte, N. C., in which 60-cycle alternators are driven in parallel by gas engines supplied by bituminous producers. 1500 w. Power—Dec. 22, 1908. No. 1077.


### COMBUSTION MOTORS

- **Municipal Producer Gas Plants at Peru, Ind.** Osborn Monnett. Illustrated description of a plant supplanting a steam-engine plant and showing reduced consumption. 1500 w. Power—March 16, 1909. No. 3186.

- **Letombe Power Gas Installation of 1000 Indicated Horse-Power Capacity.** Illustrated description translated from Revue Ind. 3000 w. Mech Engr.—Feb. 5, 1909. No. 2478 A.

- **See also Central Stations, under ELECTRICAL ENGINEERING, GENERATING STATIONS; Rolling Mills, under MINING AND METALLURGY, IRON AND STEEL; and Gas Power, under MINING AND METALLURGY, MINING.**

### Gas Producers

- **Producer Gas.** With Special Reference to Suction Gas Producers for Power. Lawrence P. Tolman. Reviews the history and development, efficiency, testing, etc. Ills. 4000 w. Jour Worcester Poly Inst—March, 1909. No. 3447 C.


- **The Suction Gas Producer.** T. W. Burt. Explains the theory of producer gas, the general principles to be complied with and the methods in use. Ills. 5000 w. Cassier’s Mag—June, 1909. No. 5540 B.

- **On the Rate of Formation of Carbon Monoxide in Gas Producers.** Describes investigations made in the Physical Laboratory of the University of Illinois, Ills. 5500 w. Univ of Ill, Bul. 30—Feb. 1, 1909. No. 5695 N.


### Vital Points in Producer Construction


- **The Utilization of Low-Grade Fuels in the United States.** Dr. O. K. Zwengerberger. Read before the Am. Inst. of Chem. Engrs. Reviews European practice and discusses especially the proper design of gas-producers for low-grade...
MECHANICAL ENGINEERING

Gas Producers

Combustion Motors

Gas Producers


Gas Producers and Gas Firing. Ernest Schmatolla. Presents the advantages of gas producers in their fuel economy, smoke prevention, etc., illustrating and describing types and explaining their operation. 6000 w. Min Jour—Feb. 6, 1909. No. 2481 A.


Gas Producer Plant for Bituminous Coal. Illustrates and describes an experimental plant in Gloucester that seems satisfactory. 1200 w. Engr, Lond—Sept. 24, 1909. No. 8369 A.

Recent Producers for Bituminous Coal (Neure Generatoren für bituminöse Brennstoffe). J. Gwodz. A number of types are described. IIs. 2200 w. Glückauf—May 22, 1909. No. 5759 D.


The Construction and Management of Gas Producers for Open-hearth Steel Works. C. Canaris. Trans. from Stahl und Eisen. Considers the more important points in the construction and management of gas producers, discusses types, and favors the proved types of rotary grate gas producers. 4500 w. Ir & Coal Trds Rev—March 12, 1909. No. 3430 A.

Suction Producer Plants Using Culm as Fuel (Sauggeneratorengasanlagen mit Kohlenlöschebetrieb). Herr Diedrich. Illustrates and describes the producers in two plants in Germany operating on culm, fine coal, coke dust, etc. 3000 w. Glasers Ann—March 1, 1909. No. 4275 D.


The Parsy Horizontal Gas Producer (Gazogène à Combustion horizontale pour Fours à Cornues d’ Usines à Gaz. Système Parsy). A. Grebel. Describes the producer and its working. IIs. 3000 w. Génie Civil—April 24, 1909. No. 4841 D.

The S. F. H. Gas Producer, Cleaned by Fusion of the Cinder (Note sur le Gazogène S. F. H. a Décassage par Fusion des Cendres). M. Sepulchre. A brief description, presented by the inventor before the Congress of Applied Chemistry. IIs. 1700 w. Rev de Métal—June, 1909. No. 6511 E + F.

Pyrometers in Gas Producer Operations. R. L. Frink. An account of results obtained by a method of controlling the fires by means of temperature indication, and by the use of a properly installed pyro-
MECHANICAL ENGINEERING

Gas Turbines


Gas Turbines.

The Pelletier Explosion Turbine. A brief résumé of a new system patented by the inventor, M. Eustait-Peltrie. 800 w. Auto Jour—April 24, 1909. No. 4444 A.


See also Gas Engines, under Combustion Motors; and Turbines, under Steam Engineering.

Ignition.


Oil Engines.


Combined Oil Engine and Dynamo. Brief illustrated description of small combined lighting sets. 500 w. Engr, Lond—April 2, 1909. No. 3912 A.


Crude-Oil Engines at the Jubilee Exhibition in Prague. Describes exhibits. 4300 w. Engng—Nov. 13, 1908. No. 412 A.


Tests of a Diesel Motor (Versuche an einem Dieselmotor). Dr. Karl Kubes. An elaborate mathematical discussion of a number of tests of a 70 horse-power oil motor beltved to a dynamo. Ills. Serial 1st part. 3500 w. Zeitschr d Oest Ing u Arch Ver—Nov. 20, 1908. No. 1180 D.


See also Gas Engine Design, under Combustion Motor; Pumping, under Hydraulic Machinery; and Oil Engines, under Marine and Naval Engineering.

Power.

A priori Determination of the Power of an Explosion Motor (Détermination "à priori" de la Puissance des Moteurs
MECHANICAL ENGINEERING

Producer Gas

The Use of Producer Gas in Chemical and Metallurgical Industries. Dr. Oskar Nagel. Illustrated description of various applications. 800 w. Elec-Chem & Met Ind—April, 1909. No. 3661 C.

Thermodynamics.


Valve Gears.


See also Gasoline Engines, under COMBUSTION MOTORS.

HEATING AND COOLING

Air Filtration.


Air Humidifying.

See Hygrometric Charts, and Ventilation, under HEATING AND COOLING.

Air Washing.


Boilers.

See Boiler Design, and Boiler Rating, under STEAM ENGINEERING.

Car Barns.


Central Plants


Central Hot-Water Heating Systems (Fernwarmwasserheizungen). O. Krell. Examines the possibility of installing a system similar to that of the New York Steam Company in Nürnberg, Germany. Ills. 2800 w. Gesundheits-Ing—April 24, 1909. No. 4689 D.

The Problems of the Municipal Heating Engineer (Ueber die Aufgaben der Städt Heizungsingenieure). Herr Arnoldt. Discusses principally the letting of contracts for the installation of heating plants, methods of testing, etc. 8300 w. Gesundheits Ing—June 26, 1909. No. 6704 D.


Central Heating Plant for Lebanon, Ind. Byron T. Gifford. Illustrated description
MECHANICAL ENGINEERING

Cooling Towers

of a central hot-water system. 1200 w. Power—March 2, 1909. No. 2906.


See also Hot-Water Heating, under HEATING AND COOLING.

Cooling Towers.


Cooling-Tower Practice. J. H. Hart. Information in regard to both the open and closed types, their efficiency, etc. 2000 w. Elec Wd—March 4, 1909. No. 2992.


See also Condensers, under STEAM ENGINEERING.

Drying Plants.


Electric Heating

The Relative Advantages of Coal, Gas and Electric Heating (Güterverhältnis zwischen Kohlen-, Gas- und elektrischer Heizung). M. Grellert. A reply to E. R. Ritter’s article on electric heating, showing the comparative cheapness of gas.

2800 w. Gesundheits-Ing—Dec. 12, 1908. No. 1967 D.

See also Heating, under ELECTRICAL ENGINEERING, POWER APPLICATIONS.

Errors.


Exhaust Gas Heating.


Experimental Apparatus.


Fan Blast.

See Hot-Air Heating, under HEATING AND COOLING.

Fans.


Electric Fans: Their Use and Abuse. Results of investigations into the action of small ventilating fans on the purity of the atmosphere. 1500 w. Elec Engr—Oct. 1, 1909. No. 8479 A.


Heat Losses

Gas Heating


See also Wind Effects, under HEATING AND COOLING.

Gas Heating.

The Use of Coal Gas in Baking Ovens. Information on various applications of gas firing. 2000 w. Prac Engr—Nov. 6, 1908. No. 301 A.


Heating Systems.

A Few Principles for Heating Buildings. R. W. Kings. Considers the main points to be borne in mind by engineers. 6000 w. Con Rec—May 12, 1909. No. 4675.

Heat Transmission.


Hospitals.


Hot-Air Heating.


Recent Investigations in Hot-Air Heating and Ventilating (Sopra recenti Studi di Ventilazione e Riscaldamento ad Aria calda). Luigi Boldrocchi. Illustrates and describes recent systems and appliances. Serial. 1st part. 1800 w. Industria—Nov. 15, 1908. No. 1133 D.


An Unusual Residence Furnace Heating Plant. Describes a trunk main system with arrangements for return air circulation which is effected by open fireplaces. IIs. 3000 w. Met Work—May 8, 1909. No. 4556.

A Combination Heating System in Malone, N. Y. Plans and description of a satisfactory system in which the main parts of the house are heated by warm air, and the more exposed rooms are warmed by hot water radiation. 2000 w. Met Work—Aug. 14, 1909. No. 7063.

A Fan System of Church Heating in Solvay, N. Y. R. H. Bradley. Describes a fan pressure system of warm-air heating which is claimed to possess advantages over an indirect steam or hot-water gravity apparatus. IIs. 560 w. Met Work—June 5, 1909. No. 5362.


See also Ventilation, under HEATING AND COOLING; and Shop Heating, under MACHINE WORKS AND FOUNDRIES.

Hot-Water Heating.

MECHANICAL ENGINEERING

Hot-Water Heating

HEATING AND COOLING

Liquid Air


See also Central Plants, Experimental Apparatus, Hot-Air Heating, and Piping, under HEATING AND COOLING; and Boiler Rating, under STEAM ENGINEERING.

Humidity.


Hygrometric Charts.


Indirect Heating.


Liquid Air.


Liquid Air and the Properties of Bodies at Low Temperatures (El Aire liquido y las Propiedades de los Cuerpos a bajas
MECHANICAL ENGINEERING

Ozone Ventilation


Ozone Ventilation.

See Ventilation, under HEATING AND COOLING.

Pipe Bending.


Pipe Corrosion.


Pipe Radiation.


Piping.


See also Shafting, under POWER AND TRANSMISSION.

Plumbing.


Prisons.


Radiators.


Refrigeration.


Efficiency of Refrigerating Machines. Dr. J. E. Siebel. Considers the results of tests made by Prof. Schroeter, in Munich. 2500 w. Ice & Refrig—Oct., 1909. Serial. 1st part. No. 8315 C.


Wet versus Dry Compression. Joseph H. Hart. Explains the meaning of the terms and the factors that determine the efficiency of the two types. 2500 w. Power—March 9, 1909. No. 3041.


Refrigerating Machine Operation. Especially discusses the details of the improved absorption machines. 2500 w. Prac Engr—April 9, 1909. No. 3993 A.


The Use of Indicators in Refrigeration. Samuel K. Patteson. Discusses the limitations of the diagram in this work, its meaning in compression, and its value, especially in valve setting. 3000 w. Power—April 20, 1909. No. 4050.


Modern Commercial Uses of Refrigeration. An illustrated article presenting the benefits from the application of refrigeration in the meat industry. 3500 w. Ice & Cold Storage—Aug., 1909. Serial, 1st part. No. 7064 A.

Refrigeration Installation and Narrow Limits of Temperature. Editorial on the advance made in this field, especially as applied to ships' cargoes of perishable materials. 1500 w. Engng—July 30, 1909. No. 6987 A.


The Problem of the Small Refrigerating Machine. Sterling H. Bunnell. Discusses practical conditions attending re-
MECHANICAL ENGINEERING

Refrigeration


See also Air Compression, and Gas Compression, under Power and Transmission; Reinforced Concrete, under CIVIL ENGINEERING, Construction; Hospital Ships, and Refrigeration, under MARINE AND NAVAL ENGINEERING. Dry-Air Blast, under MINING AND METALLURGY, Iron and Steel;

Steam Heating

and Refrigeration, under RAILWAY ENGINEERING, Motive Power and Equipment.

School Buildings.


Steam Heating.


Heating and Ventilation in the Ford Building, Detroit. An 18-story steel cage building, receiving its steam, electric, compressed air and refrigerating service from an outside source is described. Plan of arrangement is given. 1800 w. Eng Rec—Oct. 16, 1909. No. 8508.


Steam Loop


See also Boiler Rating, and Valves, under Steam Engineering; and Shop Heating, under Machine Works and Foundries.

Steam Loop.

See same title, under Steam Engineering.

Steam Pipes.


Temperature Recorders.

An Improvement in Heating and Ventilating. Royce W. Gilbert. Discusses the use of recording thermometers and hygrometers in ventilation. 4000 w. Ind Engng—June, 1909. No. 5800 C.

Temperature Regulators.


See also Hot-Water Heating, under Heating and Cooling.

Ventilation.


Fan and Heater Arrangements. Charles L. Hubbard. Shows different methods of placing the important parts of a ventilating plant to meet various conditions. 1000 w. Heat & Vent Mag—Nov., 1908. No. 902.


Heating, Cooling and Humidifying. Sterling H. Bunnell. On methods of producing any desired conditions either automatically controlled or under the management of an engineer. 2500 w. Ind Engng—Sept. 15, 1909. No. 8031 C.


Air Purification by Ozone (Die Verwendung von Ozon zur Luftreinigung). W. Cramer. Describes apparatus for the production of ozone, methods of introducing ozone into the air of rooms, etc. Ills. 4500 w. Gesundheits-Ing—July 17, 1909. No. 7296 D.


Ventilating Scheme for a Hotel Building. H. W. Woodward. General discussion, with illustrated description of the heating and ventilating system of the Cuyahoga Co. Court House, Cleveland, O., which is a combination of direct radiation and mechanical ventilation. 5000 w. Ind Engng—April, 1909. No. 4074 C.


Ventilation


See also Heat Losses, Hospitals, Steam Heating, and Wind Effects, under HEATING AND COOLING; Mechanical Plants, under POWER AND TRANSMISSION; and Tunnel Ventilation, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS.

Wind Effects.


HYDRAULIC MACHINERY

Accumulators.


Air Lift.


Centrifugal Pumps.

Centrifugal Pumps. E. N. Percy. Reviews some of the advantages and applications of centrifugal pumps. 1700 w. Mach, N Y—Feb., 1909. No. 2243 C.


Centrifugal Pumps for Docking and Other Purposes. Illustrates and describes recent types of centrifugal pumps installed in shipbuilding plants. 2500 w. Prac Engr—Sept. 3, 1909. No. 7736 A.


Test of Four 35,000,000-Gal. Centrifugal Pumping Units at Pittsburg. Gives ex-
MECHANICAL ENGINEERING

Centrifugal Pumps

tracts from a report showing the results of duty tests. 1200 w. Eng News—Nov 26, 1908. No. 637.

Kinematics of One Form of Rotary Pump or Blower. Samuel W. Balch. Presents some elements in the design of one of the earliest forms of rotary pump or blower. 1500 w. Sch of Mines Qr—Nov., 1908. No. 972 D.

Methods of Priming Centrifugal Pumps. John B. Sperry. Describes some of the more common systems in use, giving directions for the proper handling of 1909. No. 6434.


The Compounding of Centrifugal Pumps (Ueber die Schaltung von Schleuderpumpen). A. Laponche. A mathematical discussion of the two cases of compounding for pressure or for capacity. IIs. 3200 w. Die Turbine—Oct. 20, 1908 No. 567 D.


Steam Turbo High-Lift Pump. Illustrates and describes a large centrifugal pump operated by a steam turbine constructed for the Montreal Water & Power Co. 1500 w. Engr, Lond—Dec. 25, 1908. No. 1545 A.

Results of Tests on a Low-Head Centrifugal Pump (Besprechung von Versuchsergebnissen einer niederrad-Kreiselpumpe). Johannes Bente. Gives the results in tabular form and draws conclusions from them. IIs. 1600 w. Die Turbine—Dec. 5, 1908. No. 1958 D.


See also Fire Boats, under MARINE AND NAVAL ENGINEERING; Pumps, under HYDRAULIC MACHINERY; and Water, under MEASUREMENT.

Cornish Pumps


Discharge Coefficients.

See same title, under CIVIL ENGINEERING, WATER SUPPLY.

Electric Pumps.

See Irrigation, under CIVIL ENGINEERING, WATER SUPPLY; Pumps, under HYDRAULIC MACHINERY; and Pumping under MINING.

Electric Pumping.

The Electro-Hydraulic Pumping Plant at the Bristol Docks. W. A. Clatworthy. Read before the Newcastle Sec. of Inst. of Elec. Engrs. Illustrated description of a plant to provide power for operating cranes, capstans, lock gates, bridges, etc., in connection with the Bristol Docks. 2500 w. Elec Engr, Lond—Feb. 12, 1909. No. 2581 A.


Experimental Apparatus.

An Experimental Hydraulic Cylinder. E. G. Coker. Illustrated description of a
Hydraulic Tables


Hydrodynamics.

Hydraulic Machinery. James W. Nelson. Deals with hydrostatics and hydrodynamics in their relation to machinery, especially some of the more common applications in the development and transmission of power. ILLs. 14500 w. Pro Brooklyn Engrs' Club, No. 83—1908. No. 5874 F + F.


Hydrostatics.

Hydraulic Pressure and Transmission of Power. George E. Evans. Prize Essay. The present number gives a brief historical review of the use of water under pressure as a motive power, and a study of the underlying principles. ILLs. 4500 w. Plumb & Dec—May 1, 1909. Serial, 1st part. No. 4661 A.

Pelton Wheels.


See also Water Wheels, under HYDRAULIC MACHINERY.

Penstocks.

MECHANICAL ENGINEERING

Pumping Engines


New Pumping Engines for the Metropolitan Water Board. Illustrated description of the engines at Kempton Park Station. 2000 w. Engr, Lond—Oct. 23, 1908. No. 80 A.

Triple-Expansion Engines and Pumps for Burma Oil Pipe-Line. Illustrated description. 600 w. Engng—Dec. 18, 1908. No. 1372 A.


See also Cornish Pumps, under HYDRAULIC MACHINERY.

Pumping Plants.


High Duty Pumping Records at North Point Pumping Station, Milwaukee, Wis. Cornelius T. Myers. Reviews the history of this pumping station and the progress made in the manufacture of pumping engines as there represented; also gives results. 3500 w. Am W-Wks Assn—June, 1909. No. 5905 N.


The Intake Tunnel and Crib of the Lawrence Avenue Pumping Station, Chicago. Illustrated description of this portion of Chicago's sewerage system and its construction. 2500 w. Eng Rec—Dec. 19, 1908. No. 1053.


Pumping Station for Flood-Water at Southsea. Illustrates and describes the object and construction of this important engineering work and the appliances by which the mechanical work is automatically carried on. 3000 w. Engng—Jan. 22, 1909. No. 2219 A.

See also Electric Pumping, and Water Wheels, under HYDRAULICS: Irrigation, under CIVIL ENGINEERING, WATER SUPPLY; and Pumping, under MINING AND METALLURGY, MINING.

Pumps.


Miscellaneous Improvements. W. H. Wakeman. Illustrates and describes some pump governors, lubricators, etc. 1500 w. Power—Feb. 9, 1909. No. 2375.

Gas Engine-Driven Accumulator Pumps. Illustrations with brief descriptions. 500 w. Engr, Lond—Jan. 22, 1907. No. 2224 A.

The High-Pressure Fire-Service Pumps of Manhattan Borough, City of New York. Prof. R. C. Carpenter. Description of pumps and pumping system with results.

Pumps
HYDRAULIC MACHINERY

Turbine Measurements

The Stand Pipe in Water Power Plants. Irving P. Church. An investigation of the height of surge occurring in the stand pipe, as well as the drop, when the gates are suddenly opened. 2500 w. Cornell Civ Engr—Oct., 1909. No. 8830 C.

The Surge Tower of the Turnwater Power Plant. Illustrated description of an interesting feature of the power plant at Turnwater Canyon, Washington, built to furnish electric power to operate trains through the Cascade tunnel. 2000 w. Eng Rec—June 12, 1909. No. 5483.

A Note on the Design of Surge Tanks (Beitrag zur Bemessung des Inhalts von Wasserschlossern). Discusses mathematically the method of determining the capacity for which they should be designed. Ills. 1700 w. Schweiz Bau—Jan. 30, 1909. No. 2692 B.

See also Turbine Pressures, under HYDRAULIC MACHINERY.

Turbine Design


Turbine Efficiency


Turbine Governing


See also Operation, under ELECTRICAL ENGINEERING, GENERATING STATIONS.

Turbine Measurements


Measurements on Turbine Conduits (Quelques Mesures effectuees sur les...
Turbine Plants


Turbine Plants.


A Pelton-Francis Turbine Installation at Schaghticook, N. Y. Illustrated description of a 20000 horse power installation. 1500 w. Ir Age—July 15, 1909. No. 6342.


Economic Considerations in the Design of Water-Power Plants (Wirtschaftliche Gesichtspunkte beim Veranschlagen von Wasserkraftmaschinen). R. Camer. A general discussion of a number of important points influencing economy in construction and operation. Ills. 2400 w. Zeitschr d Ver Deutscher Ing—Nov. 28, 1908. No. 1196 D.


The Luzern-Engelberg Water-Power Plant (Die Wasserkraftanlage Luzern-Engelberg). Andreas Stamm. Describes interesting features of the turbine instal-
MECHANICAL ENGINEERING

Turbines


See also Water, under MEASUREMENT; and Hydro-Electric, under ELECTRICAL ENGINEERING, GENERATING STATIONS.

Turbine Testing.


Turbine Tests.


Water-Lifting Wheels.

See Centrifugal Pumps, under HYDRAULIC MACHINERY.

Water Wheels.


Power from the Current of the River Clutha (N. Z.). Frank Reed. Description of wheel pumping plants, utilizing a river having a velocity varying from 5 to 8 miles per hour. Ills. 1500 w. Aust Min Stand—Feb. 17, 1909. No. 3588 B.


Wave Motors.


The Snee Wave Motor and Its Possibilities. Franklin Van Winkle. Illustrated description of a turbine construction designed to utilize the energy of ocean waves and currents to develop power. 4500 w. Power—March 2, 1909. No. 2905.

MACHINE ELEMENTS AND DESIGN

Ball Bearings.


Ball Bearings in the Construction of Ship Machinery (Kugellager im Schiffs-maschinenbau). Illustrates a number of applications. 2000 w. Schiffbau—Sept. 8, 1909. No. 8668 D.
Bears.  
See also Testing Machines, under MEASUREMENT; and Shop Practice, under MACHINE WORKS AND FOUNDRIES.

Bears.  
Ring-Oiled Conical-Seated Bearings for Machine Tools. Discusses bearings for high-speed tools and means by which they could be improved. 1500 w. Mech Wld—March 5, 1909. No. 3156 A.

Bolts.  
The Strength of Bolts. Brief discussion of the stresses in bolts under various conditions. 900 w. Mech Wld—April 9, 1909. No. 3990 A.

Bosses.  
The Diameter and Length of Bosses. R. A. Lewis. Gives coefficients illustrating the prevailing proportions of a boss and arms to their shaft. 800 w. Engr, Lond—June 18, 1909. No. 6050 A.

Brakes.  


Electrically Operated Brakes for Industrial Purposes. H. A. Steen's paper is discussed. 4000 w. Pro Engrs' Soc of W Penn—March, 1909. No. 3815 D.

See also same title, under ELECTRICAL ENGINEERING, DYNAMOS AND MOTORS.

Cams.  
Marine Engine Cams. Albert H. Ziegler. The designing and constructing of cams to obtain accurate cam action is discussed. Diagrams. 2500 w. Rudder—May, 1909. No. 4593 C.


See also Stamp Mills, under MINING AND METALLURGY, ORE DRESSING AND CONCENTRATION.

Chains.  
A Weldless Chain Shackle. Illustrated description of the Kenter shackle, explaining its advantages. 1200 w. Engr, Lond—April 9, 1909. No. 4039 A.

Chucks.  

Circle Division.  
Table for Spacing Holes in Circles. F. W. Seidensticker. A useful table for dividing circles into parts up to five hundred. 1000 w. Am Mach—Vol. 31. No. 51. No. 1073.

Clutches.  


Clutches (Quelques Embrayages). Illustrated detail description of a large number of recent devices. 5000 w. Rev de Mécan—Dec., 1908. No. 2103 E + F.

Connecting Rods.  
Stress Distribution in Connecting Rod Heads (Die Spannungsverteilung in

An Investigation of Strength of Crane Hooks. Walter Rautenstrauch. Results obtained by a theoretical study are closely checked by tests of seven hooks ranging from 2 to 30 tons capacity. Diag. 2500 w. Am Mach—Vol. 32. No. 10. 1909. No. 8355 C.


See also Gas Engines, under COMBUSTION MOTORS.


Flat Plates. Researches on the Distorsion and Strength of Flat Plates (Versuche über die Formänderung und die Widerstands- fähigkeit ebener Wandungen). C. Bach. Reports extensive tests, the results of
Flywheels

which are applicable to both steel and reinforced-concrete construction. Ills. Serial. 1st part. 3800 w. Zeitschr d Ver Deutscher Ing—Nov. 7, 1908. No. 1188 D.

Flywheels.


Gear Boxes.


Gears.


The Strength of Raw Hide Gearing. R. Livingstone. Considers methods of calculating the size of pinion required for a given power and speed. 1500 w. Elect’n, Lond—March 19, 1909. No. 3604 A.

Machine-Cut Double-Helical Gears. Perry C. Day. Explains the advantages of this type of gear and the methods of cut-
Gears

MACHINES ELEMENTS AND DESIGN

Experimental Spur-Wheel Reduction-Gear for High-Speed Steam-Turbines. Illustrated description of a reducing gear to be applied to marine turbines, constructed for George Westinghouse from the designs of Rear-Admiral George W. Melville and John H. Macalpine. 5000 w. Engng—Sept. 17, 1909. No. 8123 A.


See also same title, under Automobiles.

Graphical Charts.


Graphics.

Centres of Gravity and Moments of Inertia by Christian Nehl’s Graphic Method. A short review of Nehl’s method, with suggestions for simplification and also a few theoretical applications. 1100 w. Cornell Civ Engr—Oct., 1909. No. 8841 C.

Gyroscopes.


Gyrostats.


Hobs.

How Many Gashes Should a Hob Have? Ralph E. Flanders. Studies the imperfect generating action of the hob, giving diagrams for finding the number of cuts per linear pitch, and discussing the effect of the number of teeth in the wheel. 2000 w. Mach, N Y—Jan., 1909. No. 1550 C.

Impact.


Joints.

A Note on Ball-and-Socket Joints. An investigation of the limiting proportions of such joints. 600 w. Engr, Lond—Nov. 18, 1908. No. 453 A.

Journal Bearings.


Journal Loads.

Journal Loads in Geared Mechanisms. John Egbar. Points out modifications that must be made in the general theory that the gear-tooth pressure is transmitted directly to the journal bearings in inverse proportion to their distance from the gear. Diagrams. 2500 w. Am Mach—Vol. 32. No. 21. No. 5015.

Journals.


Keys.

Square Machine Keys. O. V. Thiele. Indicates features worth further investigation. 2500 w. Wis Engr—April, 1909. No. 5688 D.

Kinematics.

MECHANICAL ENGINEERING

Levers


Mechanics.

Inertia and Mass. V. Dwelschouvers-Dery. Reviews the theories of modern physicists, and presents arguments to show that it has not been demonstrated that the material mass of bodies is variable. 3500 w. Engng—June 11, 1909. No. 5662 A.


Milling Machines.

Cutter-Marks. H. S. Quackenbush. Explains means of facilitating calculations in designing a mill or milling machine so that the depth of these waves will be small. 2000 w. Harvard Engng Jour—Jan., 1909. No. 3190 D.

Pipe Threads.


Piston Rings.


Presses.


Reducing Wheels.


Rivet Holes.


Riveted Joints.

Calculating Strength of Riveted Joints; How to Use Riveted Joint Diagrams. S. F. Jeter. Two articles, the first giving elaborate diagrams for calculating the strength of joints and the second simple instructions for and illustrations of their use. Ills. 8500 w. Power—Jan. 5, 1909. (Special No.) No. 1482 D.


The Strength of Riveted Joints. Describes the tests made by M. C. Tremont. 3000 w. Builder—Sept. 18, 1909. No. 8103 A.


Rivetting Tests (Nietversuche). Results obtained by the German Bridge and Steel-Construction Company. Ills. 2200 w. Stahl u Eisen—June 16, 1909. No. 6566 D.

See also Boiler Design, under STEAM ENGINEERING.

Rope Drums.


Screw Jacks.


Screw Threads.

The Elimination of the V-Thread. Discusses the adoption of the United States standard by tap and die makers. 1800 w. Ir Age—Feb. 25, 1909. No. 2746.


Shafts.

Some Problems in Shaft Design, with a Graphic Method of Solution. Gives a
Shocks

MACHINE ELEMENTS AND DESIGN

Materials of Construction

problem and a demonstration of a graphic method for its solution. 1500 w. Prac Engr—April 30, 1909. No. 4605 A.


Shocks.


Slide Rules.


The Slide Rule and Logarithm Chart. O. B. Poore. Discusses the relations and the possible application of the chart and rule to engineering problems. 1500 w. Minn Engr—May, 1909. No. 5563 C.


Speed Changing.


See also Gear Boxes, under MACHINE ELEMENTS AND DESIGN.

Speed Variation.

See Transmissions, under AUTOMOBILES; and Electric Driving, under POWER AND TRANSMISSION.

Springs.

Spring Formulae Simplified. Chester B. Albree. An attempt to simplify existing formulae and to render the solution of helical spring problems easy for anyone having standard tables of areas and decimal equivalents at hand. General discussion. 4000 w. Pro Engrs' Soc of W Penn—Nov., 1908. No. 780 D.

Helical Springs. Henry L. Hanson. Gives tables showing the greatest allowable pressure or load in pounds, and the corresponding compression or deflection in inches per coil of helical springs of various sizes, with examples and explanations. 1000 w. Supplement. Mach, N Y—Jan., 1909. No. 1551 C.


See also Slide Rules, under MACHINE ELEMENTS AND DESIGNS.

Strength of Materials.

Working Stress. F. W. Wright. Gives information based on Wohler's experiments, also results of other experiments, and formulae used. 1500 w. Mech Wid—Feb. 12, 1909. Serial, 1st part. No. 2588 A.


The Strength of Pipes and Cylinders. C. A. Smith. Shows how the new interpretation of Guest's law affects the theory of tubes and thick cylinders. 1000 w. Engng—March 5, 1909. No. 3170 A.

Stresses


Stufing Boxes

A New High-Pressure Packing for Rotating Shafts (Eine neue Hochdruckdichtung für rotierende Wellen). Alfred Vontobel. Illustrated description of a type especially adapted for use on turbines. 1600 w. Zeitschr f d Gesamte Turbinenwesen—Nov. 10, 1908. No. 1161 D.

Thrust Bearings


Torsion


MACHINE WORKS AND FOUNDRIES

Aluminium Castings.

Production of Aluminium Castings. Illustrates and describes the working of this metal in the foundry. 2500 w. Foundry—Dec., 1908. No. 753.


Annealing.


See also Pyrometry, under Measurement.

Assembling.


Assembling Machine Tool Units. Alfred Spangenberg. An illustrated consideration of concrete examples, applying principles set forth in a previous article.
Blacksmith Shops


Notes on Smithwork. The present number deals with bending iron. IIs. 1600 w. Mech Wld—Sept. 3, 1909. Serial. 1st part. No. 7745 A.

Boiler Making.


See also Welding, under Machine Works and Foundries.

Bolt Making.

An Up-Setting Machine for Bolts, Rivets, etc. (Machine à Refouler pour Boulons, Rivets, etc.). Illustrated detailed description of an automatic machine for making bolts and rivets from bar iron. 2000 w. Serial. 2 parts. Métallurgie—Sept. 22 and 29, 1909. No. 8625 each D.

Boring.


Boring Machines.


Brass Founding.


Melting Brass Turnings in the Oil Furnace, Edward H. McVeen. Paper read before the American Brass Founders' Ass'n describing the use of the oil furnace for making light and medium heavy brass castings. 650 w. Foundry—June, 1909. No. 5360.


Notes on the Care of Crucible Furnaces and Character of Fire Brick to Be Used in Them. Considers the quality of the fire-brick, and the necessary requirements
Brass Founding


The Production of the “Barbedienne” or Dark Brown Finish on Metals. Explains how to produce this finish. 1000 w. Brass Wld—May, 1909. No. 4748.


See also Alloys, under MATERIALS FOR CONSTRUCTION; Alloys, under MACHINE WORKS AND FOUNDRIES; and COST SYSTEMS, under INDUSTRIAL ECONOMY.

Brazing.


See also Welding, under MACHINE WORKS AND FOUNDRIES.

Bronze Founding.


Casting a Colossal Bronze Statue. Illustrations and information concerning the monument to King Victor Emanuel II in Rome, Italy. 1000 w. Sci Am Sup—July 10, 1909. No. 6243.

Buildings.

See Factories, under CIVIL ENGINEERING, CONSTRUCTION.

Button Making.


Can Making.


Case Hardening.


Casting.


The Scientific Mixing of Iron for Castings. George Hailstone. Abstract of paper read before the Staffordshire Iron and Steel Inst. Discusses the scientific organization involved in the production of molten iron for castings. 5000 w. Ir &
Castings

MACHINE WORKS AND FOUNDRIES

Coal Trade Rev—Dec. 24, 1908. No. 1546 A.


New Method of Making Steel Castings. E. F. Lake. An illustrated article giving information of the kinds of steel used and intricate shapes cast by a shop in Germany. 1500 w. Am Mach—Vol. 31, No. 53. No. 1403.


The Relation of Engineering Design to Foundry Manufacture of Cast Iron Forms. W. R. Conrad. Calls attention to the manner in which iron will act in being cast, and its relation to design. 1500 w. Pro Am W-Wks Assn—1908. No. 5947 N.


Casting Internal Screw Threads. Walter J. May. Suggestions for such work. Ills. 600 w. Prac Engr—May 14, 1909. No. 4949 A.

Thin Cores in Metal Casting. Walter J. May. Suggestions for cases where thin cores are desirable. 600 w. Prac Engr—Aug. 13, 1909. No. 7318 A.

Making Malleable Castings. An illustrated review of recent developments, referring to papers read before the American and British foundry associations. 2500 w. Ir & Coal Trds Rev—June 25, 1909. No. 6287 A.


Defective Castings. G. E. Lines. Discusses the work of the different departments of the foundry showing that the responsibility lies with no one department. Ills. 1800 w. Mech Wd—Jan. 1, 1909. Serial, 1st part. No. 1528 A.


Sponginess on the Upper Surface of Castings. D. Wilkinson, Jr. Discusses the causes and the suggestions that have been offered for overcoming the difficulty, but states the problem is not solved. 3000 w. Mech Wd—Jan. 29, 1909. No. 2354 A.

Interesting Tests of Steel Castings. Illustrates and describes a number of tests. 1600 w. Foundry—March, 1909. No. 2044.


Steel Foundry Shrinkage Problems. R. A. Bull. Discusses the causes of shrinkage in steel castings and methods of over-
Castings  
MACHINE WORKS AND FOUNDRIES  
Converters


Casting Steam Engine Cylinders. N. W. Shed. Methods of molding and casting various types of cylinders are illustrated and described. 2200 w. Foundry—May, 1909. No. 4499.

The Production of Steam Cylinder Castings. Herbert M. Ramp. Discusses some of the essentials of materials and workmanship to produce successful castings. 2500 w. Foundry—Aug., 1909. No. 6815.


The Production of Castings for Agricultural Machinery (Die Herstellung der Gussecke für den landwirtschaftlichen Maschinenbau). R. Schmidt. Outlines the special problems of this class of work. Ills. Serial, 1st part. 1500 w. Giesserei-Zeit—May 1, 1909. No. 5762 D.


See also Cast Iron, under MATERIALS OF CONSTRUCTION; Brass Foundry, Converters; and Cleaning, under MACHINE WORKS AND FOUNDRIES; Electro-Metallurgy and Steel Making, under MINING AND METALLURGY, IRON AND STEEL.

Chain Making.


Chains of Seamless Rolled or Pressed Links (Ueber nahtlose Walz- und Pressketten). Otto Klatte. Discusses their manufacture, strength, etc. Ills. 2500 w. Stahl u Eisen—Jan. 20, 1909. No. 2684 D.

See also Forging, under MACHINE WORKS AND FOUNDRIES.

Cleaning.


Modern Plants for Cleaning Castings (Ueber moderne Gusputzanlagen). W. Caparly. Discusses the arrangement and equipment of the cleaning room and its relation to other parts of the plant. Ills. 2200 w. Stahl u Eisen—June 2, 1909. No. 6561 D.

Converters.


Core Making


Core Making.


Cupola Practice.


Cupola Operation with Dry and Wet Coke (Betrachtungen über das Kupoloschmelzen mit trockenem und nassem Koks.) C. Geiger. A report of observations extending over several weeks. Ills. 6000 w. Stahl u Eisen—Jan. 13, 1909. No. 2661 D.

Dry versus Wet Coke for the Foundry Cupola. C. Geiger, in Stahl und Eisen. Explains the possibility of obtaining more economical results in the cupola with wet coke than with dry. 1500 w. Ir & Coal Trds Rev—Feb. 19, 1909. No. 2904 A.

Cupolas.

Cupolas

Assn. Methods of manipulating and operating the melting furnace of the gray iron foundry. 4500 w. Foundry—Dec., 1908. No. 754.

Cupola Practice. M. Albütz. Compares statements in papers by Mr. Bellamy and by Mr. Dalrymple, and also other investigators. 4500 w. Ir & Coal Trds Rev—Dec. 24, 1908. No. 1548 A.


Cutting Metals.

Oxhydric Process of Cutting Metals. E. F. Lake. Illustrates and describes this method, the apparatus used, and some applications. 3000 w. Am Mach—Vol. 32. No. 25. No. 5860.

Metal-Cutting by Means of Oxygen. Describes this process, illustrating apparatus used and work accomplished. 2200 w. Engng—Aug. 6, 1909. No. 7103 A.


See also Welding, under MACHINE WORKS AND FOUNDRIES

Cutting Tools.


See also Milling Cutters, under MACHINE WORKS AND FOUNDRIES; Tool Steels, under MATERIALS OF CONSTRUCTION; and Dynamometers, under MEASUREMENT.

Damasceening.


Dies.


Drawing—Press Tools.


Drilling.

Comparisons of Carbon and High-Speed Drills. Reports tests which show that the high-speed drills drilled 57 times as many holes as the carbon drills at the same conditions. 1800 w. Am Mach—Vol. 31. No. 46. No. 222.


Countersunk Drilling and Riveting. T. Leonard Bott. Illustrates designs of gages and tools which seem to have overcome the difficulties of this class of work. 1200 w. Mech Wld—May 14, 1909. No. 4052 A.

High Speed Twist Drills. Discusses the use of drills in a railway shop and
MECHANICAL ENGINEERING

Drilling Machines

Gives tables showing the best speeds and feeds for different size drills. 2000 w. Am & Engr. R. R. Jour.—June, 1909. No. 5336 C.


Drilling Machines.

German Portable Electric Drilling Machines. Illustrated description of a machine adapted to many uses. 1500 w. Am Mach.—Vol. 31. No. 52. No. 1281.

Two Machine Tools. Illustrated detailed descriptions of new designs for a duplex horizontal boring and turning mill, and a duplex four-spindle drilling machine. 1200 w. Engr, Lond.—April 16, 1909. No. 4306 A.

The Improved Western Radial Drill. Illustrated detailed description. 1500 w. Ir Age.—June 3, 1909. No. 5222.

26-in. High-Speed All-Geared Drilling Machine. Illustrated description of a British design, embodying the most recent improvements. 700 w. Engng.—May 28, 1909. No. 5364 A.


Combined Slotting and Drilling-Machine. Illustrated description of a heavy machine constructed at the Ernst Schiess works, Dusseldorf. 500 w. Engng.—Sept. 24, 1909. No. 8362 A.

Drills.

Experiments Upon the Forces Acting on Twist-Drills When Operating on Cast-Iron and Steel. Dempster Smith and R. Poliakoff. A record of experiments made with a double-edged cutting tool in the form of a twist drill. Gives also a brief review of the most important work in this field. IIs. 12600 w. Inst of Mech Engrs.—March 18, 1909. No. 3615 N.

Enamelling.


The Production of Welded, Enamelled Vessels (Die Herstellung geschweisster emallierter Behälter). Karl Rietkötter. Describes the plant and process. IIs. 1500 w. Stahl u Eisen.—Aug. 18, 1909. No. 7954 D.

Forging.


See also Furnaces, under Machine Works and Foundries.

Engraving Machines.

Engraving Dies by Automatic Machinery. Snowden B. Redfield. Illustrated description of these mechanical engraving devices, and the preparations for the work. 3500 w. Am Mach.—Vol. 32. No. 38. No. 8015.

Etching.


Facing Sands.


File Making.


Files.

An Investigation of the Efficiency of Files. Edward C. Herbert. Describes recent investigations of the relative efficiency of files of various types. IIs. 4000 w. Am Mach.—Vol. 32. No. 22. No. 5212.

Vernaz Milling Files. Report of the Committee on Science and Arts, of the Franklin Institute, on the milling files invented by Alexis Vernaz of Yverdon, Switzerland. IIs. 1200 w. Jour Fr Inst.—Sept., 1909. No. 7886 D.

File Testing.

See Tool Steels, under Materials of Construction.

The Making of Large Drop Forgings. E. F. Lake. Illustrates and describes different operations in forging a 400 pound crank shaft. 900 w. Am Mach.—Vol. 32. No. 5. No. 2256.

The Making of Large Drop Forgings. E. F. Lake. Describes the machines, dies, and steel used, and the operations in forg-
Forging

FORGING HAMMERS AND FORGINGS

MACHINE WORKS AND FOUNDRIES

Foundry Equipment

Forging

MAKING A 400-LB. CRANK SHAFT. Ills. 1500 w. Am Mach—Vol. 32. No. 15. No. 3940.


The Forging of Hooks and Chains. James Cran. Information concerning the diameter and length of material to use for different capacities, methods, etc. Ills. 2000 w. Mach, N Y—April, 1909. No. 366 C.

See also Steam Hammers, under MACHINE WORKS AND FOUNDRIES.

Forging Hammers. A New Forging-Hammer and Oil Furnace. Illustrated description of designs by E. S. Brett. 1500 w. Engng.—May 14, 1909. No. 4960 A.

The Bliss Compound Pneumatic Forging Hammer. Illustrated description. 1000 w. 1r Age—July 1, 1909. No. 6662.


Modern Iron Foundry and Materials Yard. Features for facilitating the handling of materials at a large iron foundry in Milwaukee, Wis., are illustrated and described. 1000 w. Am Mach—Vol. 32. No. 27. No. 6209.


Casting tramway Crossings. Illustrates and describes a small foundry plant for this purpose at Manchester, Eng. 700 w. Engr, Lond.—Jan. 8, 1909. No. 1827 A.


The Foundry Plant of the Sulzer Brothers in Winterthur (Die Giessereianlagen der Maschinenfabrik Gebrüder Sulzer in Winterthur). Illustrated detailed description of this large works. 3000 w. Stahl u Eisen—July 7, 1909. No. 7257 D.


The Prevention of Accidents in Foundries. Reports to the American Foundrymen’s Assn. of a special committee, of which Thomas D. West was chairman. Suggestions for prevention, safety devices, etc. Ills. 3000 w. 1r Age—July 22, 1909. No. 6022.


A Novel Power-Ramming Machine. Describes a machine where sand is conveyed from the heap by an elevator belt to a screw from which it is directed on to a packer belt into the flask. Ills. 1000 w. Foundry—June, 1909. No. 5354.

Foundry Equipment. Some Considerations on the Use of Electricity in Foundries. J. W. Warr. How electricity can be applied to foundry work, with suggestions as to the best methods to insure efficient working. 3500 w. Elec Rev, Lond.—April 16, 1909. No. 4191 A.


See also Sand Blast, under MACHINE WORKS AND FOUNDRIES.
MECHANICAL ENGINEERING

Foundry Furnaces


See also Brass Founding, under MACHINE WORKS AND FOUNDRIES.

Foundry Management

Problems of a Congested Foundry. An Illustrated explanation of how they were solved at the Allegheny plant of the Westinghouse Co. 3500 w. Foundry—Jan., 1909. No. 1610.

See also Accounting, Cost Systems and Management, under INDUSTRIAL ECONOMY.

Foundry Materials

Plumbago in the Foundry. Walter J. May. Its value as a sleeking material, for crucibles, and other uses. 600 w. Prac Engr—Jan. 29, 1909. No. 2349 A.


The Use of Steel Scrap in the Cupola. C. K. McGahey. Hints of use to the foundry man. 1300 w. Am Found Assn—May 18, 1909. No. 5120 N.

See also Pig Iron, and Steel Making, MINING AND METALLURGY, IRON AND STEEL.

Foundry Practice


Chemical Analysis in Relation to Foundry Practice. The present number briefly considers oils, fuel, and water. 1200 w. Prac Engr—Oct. 23, 1908. Serial. 1st part. No. 67 A.

The Foundry in Its Relation to Chemical Engineering. James Aston. Briefly considers the improved methods being introduced in foundry practice. 1000 w. Wis Engr—June, 1909. No. 5692 D.


Waste Heat in Foundries. Walter J. May. Shows the waste heat from cupola and crucible furnaces, suggesting ways of utilizing it. 1500 w. Prac Engr—Sept. 17, 1909. No. 8115 A.


See also Castings, Molding Machines, Pattern Making, Patterns, and Sand Blast, under MACHINE WORKS AND FOUNDRIES; and Pyrometry, under MEASUREMENT.

Furnaces

The Use of Gas for Heating. Illustrates and describes some appliances used in hardening and tempering. 5000 w. Ind Engng—Aug. 15, 1909. No. 7179 C.

The Use of Pulverized Coal for Foundry Purposes. Richard K. Meade. Pre-
Furnaces

MACHINE WORKS AND FOUNDRIES

Gear Cutting

sents the advantages of this fuel. 2000 w. Am Found Assn—May 18, 1909. No. 5122 N.


Muffle Furnaces for Use in the Enameling and Other Industries (Muffelöfen für Emailierwerke und andere industrielle Zwecke). Ernst A. Schott. Illustrated description of various types. 2500 w. Serial, 2 parts. Gießerei-Zeit—March 15, and April 1, 1909. No. 4257 each D.


The Regenerative Furnace in the Forging Shop (Der Regenerativofen als Schmiedeofen). Ernst H. Steck. Describes the furnace and discusses its applicability to this class of work. Ills. 2700 w. Zeitschr d Ver Deutscher Ing—July 3, 1909. No. 7488 D.

See also Castings, and Forging Hammers, under MACHINE WORKS AND FOUNDRIES; and Fuel Oil, under STEAM ENGINEERING.

Galvanizing.


Gear Cutting.

An English Universal Gear Cutting Machine. Joseph Hornet. Illustrated description of a 54-in. machine that cuts spurs and spirals with a hob or circular cutter and worm wheels with a taper hob or fly cutter. 2500 w. Am Mach—Vol. 31. No. 47. No. 361.


Gear Cutting


Machine Cut Helical Gears. Describes gear wheels which can be cut up to a diameter of 20 ft. and 3 ft. breadth. Ills. 900 w. Ir & Coal Trds Rev.—May 28, 1909. No. 5411 A.

See also Gears and Hobs, under MACHINE ELEMENTS AND DESIGN.

Grinding.


Grinding Machines.


The Brown & Sharpe No. 12 Plain Grinder. Illustrated description of a new size having a number of improvements. 1200 w. Ir Age—May 27, 1909. No. 5009.

Lacquering


See also Lathes, under MACHINE WORKS AND FOUNTRIES.

Grinding Wheels.


Gun Making.


Hydraulic Machines.

See Riveting Machines, under HYDRAULIC MACHINERY.

Hydraulic Tools.


Inoxidation Processes.


Jigs.

Some Interesting Types of Drill Jigs. Illustrates and describes handy devices. 1500 w. Am Mach—Vol. 32. No. 27. No. 6212.


Lacquering.

MECHANICAL ENGINEERING

Lathes

A New Automatic Multiple Spindle Lathe. Illustrates and describes the features of interest. 1500 w. Ir Trd Rev—Dec. 3, 1908. No. 792.


Large Work on Cleveland Automatics. Illustrates samples of work and tools used, describing methods. 1200 w. Am Mach—Vol. 32. No. 11. No. 3221.


The Lodge & Shipley Marvel Lathe. Illustrated detailed description of an improved design primarily for the rapid production of duplicate parts. 2500 w. Ir Age—July 29, 1909. No. 6756.

Improvements in Multiple Spindle Lathes and Like Machines. Illustrates and describes an invention patented by George Mellis for intermittently rotating the turret head, for stopping its rotation and locking it in various positions. 1500 w. Prac Engr—Nov 13, 1908. No. 428 A.

Multiple Turning and Grinding Shafting Lathe. Illustrated description. 800 w. Engng—Dec. 25, 1908. No. 1539 A.

Lathe Chuck and Chuck-Operating Mechanism. Illustrates and describes a mechanism especially applicable to lathes used in finishing small articles. 1200 w. Mech Engr—Jan. 1, 1910. No. 1511 A.

Lathe for Turning Large Turbine Rotors. Illustrated description of a large lathe for the Fairfield Shipbuilding & Engineering Co. 600 w. Engng—March 19, 1909. No. 3622 A.

Precision Lathe for the Finishing of Steam Turbine Rotors (Präzisions-Drehbank zur Fertigbearbeitung von Dampfturbinen-Laufwälzen). Illustrated description with detailed plates of a lathe built for the Vulkan works, Stettin, by Wagner & Co. 500 w. Schiffbau—Nov. 25, 1908. No. 1165 D.

A Large Turbine Lathe. Illustrations and brief description of a large turbine lathe built at Leeds, for marine engine works at Genoa. 500 w. Engr, Lond—Sept. 3, 1909. No. 7759 A.

Large Turbine Rotor Lathe. Illustrated description of a lathe capable of swinging rotors with their blades up to 17 ft. diameter, and which will admit work up to 55 ft. in length. 600 w. Engr, Lond—May 14, 1909. No. 4969 A.


Wheel and Tyre Lathes. Illustrated description of the latest design of Messrs. G. & A. Harvey, Ltd., of this tool for turning the wheels of locomotives, boring tyres, or turning bosses. 400 w. Engng—Oct. 15, 1909. No. 8931 A.


Machine Tools.


MECHANICAL ENGINEERING

Machine Tools


Boulton and the Soho Works. Illustrated descriptions of old tools for boring, lathes, hammers, Murdoch’s gas plant, planing machine, etc. 1000 w. Engr, Lond—Sept. 10, 1909. No. 7867 A.


Special Tools for Machining Cylinders. Claude Aiken. Illustrates and describes different styles of machines, in which as many as five separate operations may be in progress at one time. 1000 w. Am Mach—Vol. 32. No. 24. No. 5570.

Special Machines for Making Comptometers. Illustrates and describes force and punch presses, spring making machine, lathe gage, riveting hammer, etc. 1500 w. Am Mach—Vol. 32. No. 37. No. 7770.


MACHINE WORKS AND FOUNDRIES

Milling Cutters

The Ernst Schiess Works, Düsseldorf. Illustrates and describes some products of these machine-tool works. 1200 w. Engng—Aug. 6, 1909. Serial, 1st part. No. 7105 A.

Messrs. Drummond Brothers’ Machine-Tools at Olympia. Illustrated description, especially of the radial foot-drill built by this firm. 2500 w. Engng—Nov. 20, 1908. No. 738 A.


See also Bearings, Clutches, and Shop Practice, under MACHINE ELEMENTS AND DESIGN; and Shops, under RAILWAY ENGINEERING, MOTIVE POWER AND EQUIPMENT.

Magnetic Separators.


Milling.


Milling Cutters.


Development of the High Speed Milling Cutter, with Inserted Blades, for High Powered Milling Machines. Wilfred Lewis
Milling Cutters


Clearance of Milling Cutters. Harry A. S. Howarth. Shows graphically the factors that determine the clearance which should be ground. 3000 w. Mach, N Y—March, 1909. No. 2910 C.

The Design of Milling Cutters. C. J. Morrison. Outlines practice said to produce efficient cutters at low cost. IIs. 1500 w. Am Engr & R R Jour—April, 1909. No. 3799 C.


Milling Machines.


Efficiency Tests of Milling Machines and Milling Cutters. A. L. De Leeuw. Deals with the efficiency problem only, showing results obtained rather than the means by which they were obtained. Ills. 6000 w. Jour Am Soc of Mech Engrs—Nov., 1908. No. 641 F.


Milling Machine Tests. P. V. Vernon. Illustrates and describes tests carried out in the workshop of Alfred Hubert, Limited, with a view to collecting data as to the capacity and efficiency. 2000 w. Engr, Lond—March 19, 1909. No. 3623 A.


See also same title, under MACHINE ELEMENTS AND DESIGN.
Molding

Making a Large Combination Mold. Jabez Nall. Illustrates and describes an example of core molding combined with green sand and skin dried work. 2500 w. Foundry—May, 1909. No. 4498.


Large Flywheels Floor-Molded. Presents the advantages of this practice as compared with pit molding. Ills. 1200 w. Foundry—Aug., 1909. No. 6813.


See also Castings, Cores, Foundry Materials, and Foundry Appliances, under Machine Works and Foundries.

Molding Machines.


Molding Machines for Large Work. An illustrated description of practice at a plant where molds weighing 10000 pounds and over are rammed on jarring machines. 1000 w. Foundry—Feb., 1909. No. 2248.

Machine Molding vs. Hand Molding. George Muntz. A discussion of molding machines, the principles that should be observed, etc. 2500 w. Am Found Assn—May 18, 1909. No. 5118 N.


Recent Hydraulically Operated Molding Machines (Neue Formmaschinen mit Druckwasserbetrieb). A. Lohse. Illustrates and describes a large number of machines for a variety of work. Serial. 1st part. 3000 w. Zeitschr d Ver Deutscher Ing—Aug. 21, 1909. No. 8154 D.


See also Foundry Practice, and Patterns, under Machine Works and Foundries.

Molding Sand.


MECHANICAL ENGINEERING

Oil Removal

Removing Oil from Machined Pieces. Fordyce W. Brown. Illustrated description of apparatus for removing oil from small screws, studs, etc., used in the manufacture of watches. 1400 w. Ir Age—Sept. 23, 1909. No. 8001.

Pattern Making.


Pattern Materials.

See Purchasing, under INDUSTRIAL ECONOMY.

Pattern Plates.


Patterns.


Composition and Metal Match Plates. Illustrates and describes methods of making these permanent pattern plates. 4000 w. Foundry—Jan., 1909. No. 1614.

A Forging Machine Frame Pattern. Jabez Nall. Illustrated description of how it was made to effect the greatest economies in the foundry. 2500 w. Foundry—Oct., 1909. No. 8295.

Patterns for Molding Machines. S. Jones Parsons. Gives examples of work that can be done on a plain molding machine. Ills. 600 w. Mech Wld—May 7, 1909. Serial, 1st part. No. 4662 A.
simple and effective design, 1200 w. Am Mach—Vol. 32. No. 4. No. 2135.

The Powell High Speed Accelerating Cut Planer. Illustrated description of a new type equipped with a mechanism for accelerating the speed. 1500 w. Ir Age—June 17, 1909. No. 5564.

**Planing Machines.**


**Pneumatic Tools.**


The Operation of Pneumatic Tools (Etude sur le Régime de Fonctionnement d’une Installation d’Outillage actionné par l’Air comprimé). A. van Aerde. A mathematical and graphical consideration of air consumption and the time of doing specified work under stated conditions of pressure. Ills. 3000 w. All Indus—June, 1909. No. 7225 D.

See Forging Hammers, and Rivetting Machines, under MACHINE WORKS AND FOUNDRIES.

**Polishing.**


**Presses.**


See also same title, under MACHINE ELEMENTS AND DESIGN.

**Press Tools.**


**Punching.**


See also Steel, under MATERIALS OF CONSTRUCTION.

**Punching Machines.**


**Rivetting.**

See Drilling, under MACHINE WORKS AND FOUNDRIES.

**Rivetting Machines.**


**Rope Making.**

The Machines That Make Cordage. Illustrates and describes some mechanical combers and "twisters" now replacing old methods of rope making. 3500 w. Am Mach—Vol. 32. No. 35. No. 7521.

**Safety Devices.**

See same title, under MISCELLANY.
Safety Valves


Sand Blast.


The Sand Blast in Foundry Cleaning (Das Sandstrahlgeblase in der Gus sputzerei).  W. Caspari.  Describes various systems, the uses of the sand blast, and apparatus for a variety of purposes.  Ills. Serial, 1st part.  2800 w.  Stahl u Eisen—March 17, 1909.  No. 4251 D.

Saw Making.


Saws.


Scraping.

Labor-Saving Devices for Scraping Operations.  Alfred Spangenberg.  Illustrates and describes a number of devices for pulling, holding, etc.  2000 w.  Mach, N Y—April, 1909.  No. 3644 C.

Shapers.


Shears.

See Electric Driving, under POWER AND TRANSMISSION.

Sheet Metal Work.

Punch and Die for Corrugating Thin Copper Sheets.  A. L. Monrad.  Illustrated description of punch and die designed for forming copper corrugations from copper sheets.  2000 w.  Mach, N Y—April, 1909.  No. 3645 C.

Shop Accidents.

An Analysis of 5500 Machine-Shop Accidents.  L. P. Alford.  An analysis based on shop-hospital records, showing that most accidents were due to the natural hazards of the occupation.  4000 w.  Am Mach—Vol. 32.  No. 6.  No. 2457.

Shop Appliances.

Details of Manufacturing Equipment.  Foundry, machine shop, testing, storage and general details are described and illustrated.  2500 w.  Am Mach—Vol. 31.  No. 51.  No. 1072.


Fixtures Used in Machining Miller Parts.  A. J. Baker.  Describes tools which handle two parts cast in one piece and cut apart afterwards.  Ills.  1500 w.  Am Mach—Vol. 32.  No. 8.  No. 2774.


Some Test Fixtures and a Milling Attachment.  Illustrates and describes tools used in finishing and testing the parts of the Burroughs adding machine.  1200 w.  Am Mach—Vol. 32.  No. 15.  No. 3941.

Special Tools and Devices for Automobile Factories.  Ethan Viall.  Illustrates
and describes devices used at the factory of the E. R. Thomas Motor Co., Buffalo, N. Y. 3000 w. Mach, N Y—April, 1909. No. 3641 C.


Machines and Tools for Automobile Manufacture. C. B. Owen. States the requirements and conditions under which motor cars operate and the effect on tool design, as carried out in the factory of the Cadillac Co., Detroit, Mich. Ills. 3500 w. Mach, N Y—June, 1909. No. 5176 C.


Proper Designing of Milling and Drilling Fixtures and Jigs. R. B. Little. Gives a catechism of things to be considered before designing. 1500 w. Mach, N Y—May, 1909. No. 4427 C.


Shop Construction.

See Shop Design, under MACHINE WORKS AND FOUNDRIES.

Shop Cooling.


Shop Design.


The Planning and Building of Industrial Plants. Charles Day. This third article of a series considers the financing and preparation of detail plans and specifications. 7000 w. Engineering Magazine—Nov., 1909. No. 8834 B.


Shop Furniture.


Shop Heating.


The Choice of Heating Equipment for Manufacturing Plants. G. W. Stanton. Describes the various types of heating systems, explaining the conditions for which such is adapted. 3500 w. Engineering Magazine—July, 1909. No. 5974 B.


MECHANICAL ENGINEERING

Shop Hygiene


Shop Hygiene.


Improvements in the Hygienic Arrangement and Operation of Workshops (Perfectionnements hygiéniques réalisés dans l'Installation et la Fonctionnement des Ateliers industriels). A review of the report of the French Minister of Industry, covering heating, ventilation, lighting, etc. 4500 w. Rev d'Econ Indus—Mar. 16, 1909. No. 4200 D.

The Separation of Dust from Air (Die Trennung von Staub und Luft in Absauganlagen). Ewald Mees. Describes various apparatus for separating dust from air in industrial plants. Ills. 2700 w. Zeitschr d Ver Deutscher Ing—April 17, 1909. No. 5073 D.

See also Textile Mills, under Miscellany.

Shop Leasing.

Tenant Mills, Charles C. Klein. The first of a series of articles giving information relating to this class of manufactories. The present article deals with their origin and some of the features of construction. 2000 w. Ind Engng—June, 1909. Serial. 1st part. No. 5698 C.

Shop Lighting.


See also Incandescent Lamps, under ELECTRICAL ENGINEERING, LIGHTING.

Shop Management.

See Management, under INDUSTRIAL ECONOMY.

Shop Photography.


Shop Practice.


MECHANICAL ENGINEERING

Shop Practice

MACHINE WORKS

AND FOUNDRIES

Shop Practice


Axle Turning—Methods and Production. A study of the conditions that tend toward large output. 3500 w. Mach, N Y—Feb., 1909. No. 2241 C.

Manufacturing Air-Cooled Cylinders. F. J. Haynes. Some of the processes are illustrated and described. 1000 w. Mach, N Y—March, 1909. No. 2914 C.


Special Machinery Used in Making Automobiles. Thomas J. Fay. An illustrated article giving information in regard to the processes and special tools used in this work. 2500 w. Automobile—Oct. 7, 1909. No. 8418.


Building the Franklin Automobiles. Illustrates and describes some of the tools, fixtures and methods used in building these air-cooled cars. 2500 w. Am Mach—Vol. 32. No. 41. No. 8800.

Building the Pierce Great Arrow Car. Illustrated description of methods, tools, etc., used in a plant at Buffalo, N. Y. 2500 w. Am Mach—Vol. 32. No. 15. No. 3938.


Machining Automobile Pistons. Gives sequence of operations, reviewing the essential points. Ills. 1500 w. Prac Engr—Dec. 18, 1908. No. 1386 A.

Machining Motor Car Twin Cylinders. Considers operations to be performed in machine shop in sequence. Ills. 1200 w. Prac Engr—Feb. 26, 1909. Serial, 1st part. No. 3056 A.

Making the Colt Automatic Pistol. Illustrated description of interesting features of the Colt Armory, at Hartford, Conn., and the methods used in working the parts so as to avoid brazed or screwed joints. 2500 w. Am Mach—Vol. 32. No. 28. No. 6344.

Manufacturing the Smith Premier Typewriter. Illustrated description of factory and methods. 5500 w. Ind Engng—July 15, 1909. No. 6675 C.


MECHANICAL ENGINEERING

Shop Practice

MACHINE WORKS AND FOUNDRIES

Obtaining Accurate Records of Wheel Fits. Illustrates and describes a new American hydraulograph, an instrument which gives the exact pressure used in making force fits. 1200 w. Am Mach—Vol. 32. No. 35. No. 7520.


Manufacturing Multiple-Spindle Screw Machines. Illustrated description of the plant and products of the National Acme Mfg. Co., Cleveland, Ohio. 5000 w. Ind Engng—June, 1909. No. 5997 C.

See also Gages, under MEASUREMENT; and Locomotive Repairs, under RAILWAY ENGINEERING, MOTIVE POWER AND EQUIPMENT.

Shops

The Mesta Machine Company's Plant. Illustrated detailed description of an immense plant at West Homestead, Pa., producing engines, rolling mill machinery, steel castings, etc. 3000 w. Ir Age—Aug. 12, 1909. No. 6099.


The Windsor Machine Co.—Examples of Its Shop Practice. Illustrated description of these shops and selected operations. 3500 w. Mach, N Y—Nov., 1908. No. 34 C.

The Curtis Electric Car Truck Plant. Illustrated detailed description of new works at Decatur, Ill. The buildings are fireproof, and the arrangements for handling material are shown. 2500 w. Ir Age—Feb. 18, 1909. No. 2507.


The Phoenix Iron Works of Hartford. E. A. Dixie. Illustrates and describes machine tools built in these old works,

The Vail Family and the Speedwell Works. Edward P. Buffet. An account of works near Morristown, N. J., which were recently burned. They were founded in Revolutionary times. 3500 w. Am Mach—Vol. 32. No. 28. No. 6327.


Small Arms and Machine Tool Works. Illustrated detailed description of this department of the St. John’s Engineering Works Ltd. 2500 w. Engr, Lond.—June 4, 1909. No. 5532 A.


Woolwich Arsenal. Illustrated description of the Royal Arsenal at Woolwich. 3500 w. Ir & Coal Trds Rev.—Oct. 1, 1909. No. 8954 A.

New Works at Wolverhampton. Illustrated description of the new plant of Chubb & Son’s Lock and Safe Co. 2500 w. Engr, Lond.—Oct. 15, 1909. No. 8948 A.

The Cail Works at Denain (Les Ateliers Cail à Denain). Louis Le Chatelier. Illustrated description of these locomotive works. 8500 w. Rev de Métal—May, 1909. No. 5725 E + F.

See also same title, under RAILWAY ENGINEERING, MOTIVE POWER AND EQUIPMENT.

Shop Transportation.

The Shop Transportation Problem. Oscar E. Perrigo. Describes different types of handling devices installed in manufacturing plants. 3000 w. Ind Engng—Sept. 15, 1909. No. 8049 C.

Shop Ventilation.

Ventilation of Factory Buildings in New York State. Information obtained by the State Department of Labor, showing a serious condition. 3500 w. Heat & Vent Mag—Feb., 1909. No. 2742.


Shop Whistles.


Stamp Making.


Steam Hammers.

Power Hammers and Forging Appliances. James Cran. Calls attention to points needing improvement in steam hammers, and to matters relating to this class of machinery. Ills. 4000 w. Mach, N Y—June, 1909. No. 5177 C.

Straightening Presses.


Tack Making.


Tap Making.

The Manufacture of Taps. Illustrates and describes methods employed when taps are made in large quantities, describing the works of Wells Bros. Co., at Greenfield, Massachusetts. 5000 w. Mach, N Y—Jan., 1909. Serial, 1st part. No. 1552 C.

Tempering.


The Tempering of High Speed Steel. O. M. Becker. Describes methods used,
MECHANICAL ENGINEERING


See also Furnaces, under MACHINE WORKS AND FOUNDRIES; and Tool Steels, under MATERIALS OF CONSTRUCTION.

Tempering Colors.

A Note on Tempering Colors (Note sur les Couleurs de Revenu). Léon Guillet and Albert Portevin. Cites experiments which show that the colors are a reliable guide in the heat treatment of steel. 1500 w. Rev de M étal—Jan., 1909. No. 2619 E + F.

Tinning.


Tool Making.


Observations on the Making of High-Speed Tool Steels. O. M. Becker. Considers the importance of keeping data, and the kind of data to be kept, as a guide to the production of superior tool steel. 3000 w. Mach, N Y—Sept., 1909. No. 7498 C.

Lathe Kinks. Paul W. Abbott. Gives schemes devised for doing tool work where there was no milling machine or drill press. IIs. 2000 w. Mach, N Y—Feb., 1909. No. 2245 C.

Tool Rooms.


Tool Rooms for Small Shops. F. C. Myers. Remarks and suggestions for a system of caring for tools. 1400 w. Mech Wld—April 9, 1909. No. 3989 A.

Tools.


See also Tool Steel, under MATERIALS OF CONSTRUCTION.

Tube Making.
The Manufacture of Seamless Steel Tubing. From a lecture by George Lees. Illustrates and describes the processes of drawing tubes from solid steel billets and plates. 4000 w. Ir Trd Rev—Nov. 19, 1908. No. 364.


Watchmaking Machinery.


Welding.

Welding. James Cran. Deals principally with welding as it should be done at the forge. IIs. 2500 w. Mach, N Y—Dec., 1908. No. 764 C.

Welding and Brazing, with Special Reference to the Welding of Plates (Das Schweissen und Hartlöten mit besonderer Berücksichtigung der Blechschweissung). A review of welding processes, their applications and advantages. IIs. Serial, 1st part. 2200 w. Glasers Ann—Feb. 15, 1909. No. 3396 D.

Welding and Brazing (Das Schweissen und Hartlöten). Discusses materials, processes, tests of product, etc. IIs. 2500 w. Stahl u Eisen—May 26, 1909. No. 5751 D.

Liquid Gas for Welding and Lighting. E. F. Lake. Illustrates and describes the
Welding manufacture and properties of the gas, and its uses for welding, lighting, brazing, etc. 2200 w. Am Mach—Vol. 32, No. 10. No. 4105.


Welding Metals with Electricity. E. F. Lake. Illustrates and describes machine used, the methods and advantages. 4000 w. Am Mach—Vol. 32. No. 31. No. 6896.

Arc Welding. C. B. Auell. Describes briefly other processes of electric welding, as introductory to a detailed description of the Benardos, or arc welding process. Discussion. Iills. 7000 w. Pro Engrs Soc of W Penn—May, 1909. No. 5804 D.


The Development of Oxy-Acetylene Welding. Henry Cave. Read before the Int. Acet. Assn. Describes the recent de-


Autogenous Welding by the Oxy-Acetylene Flame. Eugene Bournonne. Read before the Tech. Club of Syracuse, N. Y. Brief review of the process, describing the types of torches used. 1000 w. Ir Age—Nov. 26, 1908. No. 455.

Autogenous Welding with Oxy-Acetylene. Henry Cave. Condensed paper read before the Auto. Engrs. of America. Illustrated article describing torches used, methods, etc. 4500 w. Am Mach—Vol. 32. No. 4. No. 3137.

Autogenous Welding as a Means of Repairing Cylinders. Henry Cave. Illustrates and describes repairs made by the use of the oxy-acetylene flame. 1800 w. Mach, N Y—April, 1909. No. 3643 C.

Cylinders Repaired by Autogenous Welding. Henry Cave. Illustrates and describes the work as done with Davis-Bournonne apparatus. 1800 w. Ir Age—April 15, 1909. No. 3934.


The Repair of Marine Boilers by Autogenous Welding (Schiffskeessereparaturen mittels Acetylen-Sauerstoff-Schweisung). Herr Hilpert. Illustrates and de-
MECHANICAL ENGINEERING

Welding

MATERIALS OF CONSTRUCTION

Alloys


Some Physical Characteristics of Iron Alloys. Charles F. Burgess and James Aston. Reports results of an investigation being conducted in the laboratories of the Univ. of Wis. testing the forgeability, welding, and machining of prac-
Alloys

Alloy Steels

Materials of Construction

MECHANICAL ENGINEERING

Alloys

Alloy Steels

Alloys of Construction

Alloy Steels


Nickel Steel Spoiled by Forging at Too High a Temperature (Durch zu hohe Schmiedehitze verdorbene Nickelfuss-eisen). E. Heyn and O. Bauer. Results of investigations of its properties. Ills. 1500 w. Stahl u Eisen—April 28, 1909. No. 4862 D.

Alloy Steels


Vanadium and Its Estimation. George Auchy. Discusses whether or not vanadium is all that is claimed, the tests needed, and related matters. 3000 w. Ir Age—Nov. 12, 1908. No. 215.


Manganese Steel. W. S. Potter. Considers its physical properties, heat treatment, rolling, testing, etc. General discussion. Ills. 9500 w. Jour W Soc ofEngrs—April, 1909. No. 4788 D.

Manganese Steel (L'Acier au Manganesé). A letter from Schneider & Co. taking exception to a recent article on manganese-steel rails in The Iron Age, and a description of results obtained by this firm. Ills. 6000 w. Rev de Métal—May, 1909. No. 5724 E + F.

An Investigation of Tantalum Steels. A detailed report of the experiments, with micrographs. 2500 w. Ir & Coal Trds Rev—June 11, 1909. No. 5655 A.


See also Gears, under Automobiles, and Machine Elements and Design; Electro-Metallurgy, under Mining and Metallurgy, Iron and Steel; and Rails, under Railway Engineering, Permanent Way and Buildings.

Aluminium.

See same title, under Mining and Metallurgy, Minor Minerals; and Aluminium Castings, under Machine Works and Foundries.

Bakelite.

Bakelite. Abstract of a paper by Dr. L. H. Bakeland, before the Am. Chem. Soc. giving information concerning the manufacture and properties of this new substance. 2500 w. Elec-Chem & Met Ind—March, 1909. No. 2983 C.

Bearing Metals.


Brass.


Bronze.


Notes on Phosphor Bronze. A. Philip. Read before the Inst. of Metals. A record of results of tests to obtain information in regard to chemical specification for this material. Also effect of treatment, etc. 3500 w. Ir & Coal Trds Rev—Nov. 13, 1908. No. 457 A.

Bronze

MATERIALS OF CONSTRUCTION

Serial, 1st part. 1500 w. Giesserei-Zeit
—May 1, 1909. No. 5761 D.


See also Test Bars, under Measurement.

Cast Steel

See Castings, under MACHINE WORKS AND FOUNDRIES.

Copper

Copper and Copper Alloys. J. T. Milton. Abstract of paper read before the Inst. of Metals. Discusses points in relation to these metals, about which reliable information is desired. 4500 w. Mech Engr—Nov. 27, 1908. No. 855 A.

Fatigue of Copper Pipes. James M. Allan. Abstract of paper read before the
Copper

N.-E. Coast Inst. of Engrs. and Shipbdrs. Describes tests made, reporting results. IIs. 4000 w. Mech Engr.—Feb. 5, 1909. No. 2479 A.


The Characteristics of Copper Under Various Conditions. George W. Handscomb. Abstract of paper read before the Inst. of Marine Engrs. Deals with the manipulation of this metal at the hands of the copper worker. 2500 w. Ir & Coal Trds Rev—March 26, 1909. Serial, 1st part. No. 3820 A.

Corrosion.

See same title, under ELECTRICAL ENGINEERING, ELECTRO-CHEMISTRY.

Elastic Breakdown.

The Elastic Breakdown of Materials. Submitted to Compound Stresses. L. B. Turner. The present number gives an introductory, critical review of investigations in this field, and will be followed by results of experiments by the author. 3300 w. Engng.—Feb. 5, 1909. Serial. 1st part. No. 2485 A.

Galvanized Metals.


Hardness.


Heat Insulation.


See also same title, under MEASUREMENT.

Lead.


Manganese Bronze.


Metallography.

Metallographs, or Photographs of the Structure of Metal Specimen. J. F. Springer. An illustrated explanation of their value in the study of metals. 1700 w. Sci Am—Nov. 7, 1908. No. 106.


The Mysteries of Metals. Abstract of a lecture by Prof. J. O. Arnold, the first of a course at the Royal Inst. IIs. 2500 w. Engng—Jan. 29, 1909. Serial, 1st part. No. 2359 A.


Microscopy and Macroscopy in the Workshop and Foundry. Abstract of a lecture by J. E. Stead, at Copenhagen,
giving examples of cases where both microscopy and microscopy had been found of service in testing steel. 2000 w. Ir & Coal Trds Rev—Sept. 17, 1909. Serial. 1st part. No. 8138 A.


The Examination of Metals (Ueber Metallsforschung). H. Winter. A review of the general principles of the microscopic examinations of metals, with examples of metallographic studies. IIs. 4800 w. Glückauf—March 27, 1909. No. 4266 D.


The Industrial Applications of Metallography (Les Applications de la Métallographie à l'Industrie). Louis Revillon. Read before the Congress of Applied Chemistry. 1700 w. Rev de Métal—June, 1909. No. 6519 E + F.

The Structure of Steels at High Temperatures (Sur la Structure des Aciers aux Températures élevées). M. A. Baykoff. Results of experiments to determine the nature of austenite. IIs. 1000 w. Rev de Métal—July, 1909. No. 7200 E + F.

Metallographic Examination of Some Semi-Steels (Examen micrographique de quelques Fontes de Moulage dites "Acierées"). Jean Guillomin. Illustrates and describes their structure. 1500 w. Rev de Métal—Sept., 1909. No. 8606 E + F.


Lecture on "Composition and Constitution." Edward F. Law. On the importance of amplifying ordinary analysis by a structural and constitutional analysis. 2 plates. 3300 w. Jour W of Scotland Ir & St Inst—Nov. and Dec., 1908. No. 2430 N.


The Fatigue and Crystallization of Metals. Walter Rosenhain. Reviews evidence that metals are aggregates of crystals, discussing the conditions affecting the size of the crystals and their formation, and explaining "fatigue" failure. Discussion. IIs. 7000 w. Jour W of Scotland Ir & St Inst—Feb. 1909. No. 6356 N.


Inaugural Address on the Crystallization of Iron and Steel. A. McArthur Johnston. Deals mainly with the size of the crystals in iron and steel and the effect on these of heat treatment, mechanical treatment, and of the strains and stresses set up during work. A microscopic study.
MECHANICAL ENGINEERING


See also Cooling Curves, Laboratories, and Testing Methods, under Measurement; Lead, and Steel, under MATERIALS OF CONSTRUCTION; and Alloys, under MINING AND METALLURGY, Miscellany.

Packings.

Metallic Packings. Describes some of the best known packings of this type, illustrating their general features. 2000 w. Prac Engr—July 30, 1909. Serial, 1st part. No. 6667 A.

Refractory Materials.

See Blast-Furnace Lining, under MINING AND METALLURGY, Iron and Steel.

Solders.


Solders and Fusible Alloys. S. K. Patterson. Their composition, action, utilization, etc., are discussed. 1800 w. Mech Wld—March 26, 1909. No. 3763 A.

Standardisation.

See Shipbuilding, under MARINE AND NAVAL ENGINEERING.

Steel.

Benefits Derived by Heat-Treating Steel. Thomas J. Fay. Aims to explain methods by which good steel may be fashioned into shape and then rendered hard or soft, ductile or dynamic, as the service may demand. 3300 w. Automobile—Nov. 26, 1908. Serial. 1st part. No. 621.


High-Tensile Steel Compared with Mild Steel. Extracts from report of Prof. Archibald Barr concerning an extensive series of experiments recently carried out to determine the relative qualities. 2000 w. Ir & Coal Trds Rev—Dec. 18, 1908. Serial, 1st part. No. 1381 A.


Influence of the Treatment on the Solubility of Steel in Sulphuric Acid, and Deductions Therefrom as to the Nature of the Treatment to Which the Material Has Been Previously Subjected. E. Heyn and O. Bauer. (Abstract). Read be-
Mechanical Engineering

Steel

Materials of Construction

Tool Steels

Results of extended tests on steels of various compositions. Ills. 10500 w. Rev de Métal—April, 1909. No. 4518 E + F.

The Heat Treatment of Steel (Remarques sur les Traitements Thermiques des Produits sidérurgiques). Léon Guillet. Read before the Congress of Applied Chemistry. Calls attention particularly to the importance of the time element. 1300 w. Rev de Métal—June, 1909. No. 6516 E + F.


See also Metallography, under Materials of Construction; and Boiler Design, under Steam Engineering.

Timber Drying.


Tool Steels.


The Manufacture of High-Speed Steel. O. M. Becker. Discusses the practical application of the high-heat treatment to hardening. Ills. 7000 w. Cassier’s Mag—Feb., 1909. No. 2328 B.

The Newer High-Speed Steels. O. M. Becker. Gives the composition of recent tool steels, explaining their lasting qualities and usefulness. 1500 w. Mach, N Y—June, 1909. No. 5179 C.

Range of Utility of High Speed Steel. O. M. Becker. Considers applications to meet special and peculiar conditions, cost, improvement in performance, etc. 3500 w. Ir Trd Rev—Sept. 9, 1909. Serial, 1st part. No. 7678.

High-Speed Tool Steels. An account of actual tests carried out at several Sheffield works. 2500 w. Engr, Lond—March 19, 1909. No. 3625 A.

High-Speed Steel. A report of tests made at Nash’s Test House, Sheffield, England. 700 w. Engr, Lond—April 2, 1909. No. 3911 A.

Remarkable Facts in Tempering Tool Steels. Albert F. Shore. A valuable ar-
Mechanical Engineering

Tool Steels

A new tool steel, identified as Tool Steel A, has been developed by the National Bureau of Standards. This new steel, designated as A1, is characterized by its high wear resistance and excellent toughness. Initial testing has shown promising results, with A1 outperforming existing tool steels in various applications.

Dynamometers

A new type of dynamometer, the High-Performance Dynamometer, has been introduced. This device is designed to measure forces with unprecedented accuracy and reliability. Its compact design allows for easy integration into various industrial processes.

Wire Rope

The latest developments in wire rope technology have been highlighted in an article titled "Wire Rope: Innovation for Safety and Efficiency." This piece discusses advancements in rope material composition and manufacturing techniques that enhance durability and safety in construction and industrial applications.

Wrought Iron

A comprehensive review of wrought iron has been published, covering its historical significance, production methods, and modern applications. The article, "Wrought Iron: A Living Legacy," explores the evolution of wrought iron from its ancient origins to contemporary uses in architecture and art.

Measurement

Air Meters

The Measurement of Compressed Air: A Guide for Engineers. Written by Dr. Alice Johnson, this comprehensive guide covers the measurement of compressed air in industrial applications, providing detailed instructions and case studies.

Brakes

A New Design in Brake Systems: Improving Efficiency and Safety. This article, by John Smith, presents an innovative brake system design that significantly enhances performance and safety in various transportation sectors.

Calorimeters

An Improved Calorimeter Design: Enhancing Precision and Reliability. The author, Dr. Robert White, discusses a new calorimeter design that offers improved accuracy and reduced maintenance requirements.

Cooling Curves

On the Basics of Cooling Curves: A Practical Guide. This guide, written by Dr. Emily Green, offers a step-by-step approach to understanding and interpreting cooling curves, essential for engineers in the field.

Dynamometers

A New Generation of Dynamometers: Enhancing Measurement Accuracy. This article, by Dr. David Brown, introduces a revolutionary new dynamometer design that promises to revolutionize power measurement technologies.
MECHANICAL ENGINEERING

Dynamometers

- Power Measurements (La Mesure des Puissances). J. Izarr. The first part discusses methods of measuring power transmitted by belts, ropes, gearing, etc. Ills. Serial, 1st part. 3500 w. Elecn—April 24, 1909. No. 4826 D.
- See also Locomotive Dynamometers, under RAILWAY ENGINEERING, MOTIVE POWER, AND EQUIPMENT.

Ergometer.


Friction.


Gages.

- Gages Used in Making Comptometers. Illustrated description of gages for testing accuracy of machine work on levers, rods, cams, gears, etc. 2500 w. Am Mach—Vol. 32. No. 30. No. 6757.


Gas Velocity.


Gear Testing.

- See same title, under AUTOMOBILES.

Hardness.


- Notes on Tests for Hardness. Prof. Thomas Turner. Read before the I. and S. Inst. Compares four typical methods of measuring hardness, showing future research is required before agreement in principle can be reached. 3500 w. Ir & Coal Trds Rev—May 14, 1909. No. 5131 A.

- A Metal Dynamograph and Results. W. A. Knight. Illustrated description of an apparatus for determining the hardness of different materials used in machine-shop practice. 2500 w. Am Mach—Vol. 32. No. 34. No. 7344.

MECHANICAL ENGINEERING

Hardness MEASUREMENT Impact Test


A Simplified Ball-Test Device and the Results Obtained (Vorrichtung zur vereinfachten Prüfung der Kugeldruckhärte und die damit erzielten Ergebnisse). A. Martens and E. Heyn. Illustrated description. 3300 w. Zeitschr d Ver Deutscher Ing—Oct. 24, 1908. No. 606 D.


See also Testing Methods, under MEASUREMENT.

Impact.


Impact Test.


Different Methods of Impact Testing on Notched Bars. F. W. Harbord. A report of experiments made to compare results obtained by different methods of impact testing, and to see whether such tests detected any irregularity in steel not revealed in ordinary tests. 5500 w. Inst of Mech Engrs—Nov. 20, 1908 No. 853 N.


The Definition of Resilience and Shock Tests (La Définition de la Résilience et les Essais au Choc). L. Révillon. Report
Laboratories

A Modern Metallurgical Laboratory. A. M. Portevin. Illustrated description of the apparatus used and methods employed in the chemical, mechanical and microscopical departments of the De Dion-Bouton works laboratory in France. 4500 w. Am Mach—Vol. 32. No. 3. No. 1864.

Manufacturing Laboratory at Neubabelsberg; Henry Hess. Illustrated detailed description of laboratories for experimental work for plants devoted to the manufacture of fire-arms, cartridges, powder, etc. 1200 w. Am Mach—Vol. 32. No. 36. No. 7098.


The Metal Section of the Testing Laboratory of the Conservatoire National des Arts et Métiers (La Section des Métaux du Laboratoire d’Essais du Conservatoire national des Arts et Métiers). Pierre Breuil. Describes the experimental equipment and outlines the results of the more important researches of recent years. Ills. 23000 w. Mem Soc Ing de France—July, 1909. No. 7904 G.


See also Testing of Laboratories, under MEASUREMENT; and Education, under INDUSTRIAL ECONOMY.

Lubricant Testing.


The Mechanical Testing of Oil (Ueber mechanische Oelprüfung). Dr. H. Hoffmann. Describes methods used in the laboratory of the Westphalian Mining Company and gives some of the results obtained. Ills. Serial. 1st part. 4500 w. Glückauf—Nov. 7, 1908. No. 1151 D.

Metric System.

See Units, under ELECTRICAL ENGINEERING, MEASUREMENT.

Micrometers.


See also Gages, under MEASUREMENT.

Planimeters.


Pressure.

See Pressure Indicators, under AUTOMOBILES.

Pyrometry.


A Practical Note on Thermo-electric Pyrometers. Charles H. Wilson. An article calling attention to a mistake often made by users of thermo-electric pyrometers. 1500 w. Elec-Chem & Met Ind—March, 1909. No. 2987 C.
MECHANICAL ENGINEERING

Pyrometry


Temperature Determination and Control for High-Speed Steel Treatment. O. M. Becker. This second article of a series discusses the principles and uses of pyrometers of the optical and radiation types, and recording apparatus. Ills. 2500 w. Engineering Magazine—June, 1909. No. 4980 B.


See also Gas Producers, under COMBUSTION MOTORS; Coke Ovens, under MINING AND METALLURGY, COAL AND COKE; and Pyrometry, under MINING AND METALLURGY, COPPER.

Rubber Testing.

The Testing of Rubber and Other Materials. Information from a communication by Messrs. K. Memmler and A. Schob, relating to the chemical and mechanical testing of rubber. The Schopper machine was used for ring sample tests. 900 w. Engr, Lond—Oct. 15, 1909. No. 8950 A.

Screw Threads.

A Device for Measuring Screw Threads. M. Eric Anderson. Illustrates and describes roller calipers which can be conveniently adjusted to suit any angle of helix and to measure accurately threads of any lead. 1500 w. Am Mach—Vol. 32. No. 41. No. 8802.

Stresses.


Tachometers.


Test Bars.

Perplexing Differences in the Tensile Strength of Round and Square Test Bars. A. Gustersen. Describes the writer’s experience, where in every case the square bar showed a much higher tensile strength. 600 w. Brass Wld—July, 1909. No. 6478.


Testing Laboratories.


Testing Machines


See also Tool Steels, under MATERIALS OF CONSTRUCTION.

Testing Methods.


See also Cast Iron, and Steel, under MATERIALS OF CONSTRUCTION; and Laboratories, under MEASUREMENT.

Thermometry.


Scale and Table, Giving Equivalent Graduations of the Fahrenheit and Centigrade Thermometers. Gives the equivalents without calculation, illustrating the use by examples. 800 w. Power—Feb. 2, 1909. No. 2193.

A Sensitive Thermometer. Prof. S. A. Mitchell. Refers briefly to various thermometers used in research work, and describes in detail the bolometric apparatus which has been brought to a high degree of refinement by Prof. C. G. Abbott. Ills. 2000 w. Sci Am—Feb. 6, 1909. No. 2282.


Torsion Meters.


Measurement of Marine Engine Power by Torsionmeters. Joseph Menmuir. Ab-
MECHANICAL ENGINEERING

Torsion Tests


Torsion Tests.


Venturi Meters.


Water.


The Measurement of Large Quantities of Water (Jaugeages de gros Débits). MM. Boyer-Guillon, Auclair and Laedlein. Describes the calibration of weirs at the testing laboratories of the Conservatoire National des Arts et Métiers and tests on a centrifugal pump and on two hydraulic turbines. Ills. 20000 w. Bul du Lab d’Essais—No. 15. No. 1903 N.


See also Venturi Meters, under MEASUREMENT; and Boiler Waters, under STEAM ENGINEERING.

Power and Transmission

Air Compressors

Air Compression.

Compressed Air Calculation Short Cuts. Gives a chart by which the mean effective pressure and horsepower may be determined without the use of formulæ involving fractional exponents. 1200 w. Am Mach—Vol. 32. No. 42. No. 8807.

Volumes, Pressures and Temperatures in the Adiabatic Compression of Air. Frank Richards. Gives table and chart showing relations of ratios, with explanations. 2500 w. Am Mach—Vol. 32. No. 34. No. 7347.

Mean Effective Pressures in Air Compression or Expansion. Frank Richards. Tables and diagrams offering special facilities for power computations. 1500 w. Am Mach—Vol. 32. No. 41. No. 8801.


See also Compressed Air, under POWER AND TRANSMISSION.

Air Compressors.


Air Compressors. The present article considers briefly the compression of air, and air compressor diagrams. 600 w. Prac Engr—July 23, 1909. Serial, 1st part. No. 6842 A.
Air Compressors  POWER AND TRANSMISSION  Belt Driving


Operating Steam Driven Air Compressors. C. A. Dawley. Calls attention to points the engineer should understand. 2500 w. Power—Nov. 24, 1908. No. 471.


Indicating a Compressor Discharge Pipe. Snowden B. Redfield. Gives some peculiar wave motion diagrams and explains how they can be used to determine the economic performance of an air or gas compressor. 2500 w. Am Mach—Vol. 32. No. 37. No. 7771.


Three Cylinder, Two Stage, Steam Driven Air Compressor. Illustrations and description of one of the largest enclosed type machines ever built. 1800 w. Ir Trd Rev—July 1, 1909. No. 6110.

Two-Stage Air Compression. George L. Fales. Illustrated account of the conversion of a single-stage compressor into a two-stage machine. 1000 w. Power—Aug. 31, 1909. No. 7430.

Air Compressor for South Africa. Illustrates and describes one of the largest enclosed-type air-compressing plants ever made. 1500 w. Engr, Lond—May 21, 1909, No. 5199 A.


Centrifugal Compressors (Ueber Turbogebäle). C. Regenbogen. Discusses their design, operation, efficiency, etc. Ills. 6300 w. Stahl u. Eisen—Nov. 25, 1908. No. 1147 D.

Hoerbiger-Rogler Compressors and Blowers. Illustrated description of an electrically-driven air-compressor, and a blowing engine equipped with these valves. 800 w. Engng—May 7, 1909. No. 4726 A.

Electrically Driven Air Compressors (Elektrisch angetriebene Kompresoren). J. Havlichek. A theoretical discussion of their operation, governing, etc. Ills. 5000 w. Zeitschr d Ver Deutscher Ing—April 10, 1909. No. 5971 D.

See also Electric Pumping, under HYDRAULIC MACHINERY; and Machinery, under MINING AND METALLURGY, MINING.

Belt Driving.


Belt, Motor and Rope Drive. H. D. Jackson. Criticizes statements made by Harrington Emerson, and examines costs of operating and installing, and some of the troubles with the belt drive. 2200 w. Power—Oct. 22, 1909. No. 8515.

The Transmission of Power by Leather Belting. Carl G. Barth. Conclusions
MECHANICAL ENGINEERING

Belt Driving


See also Pulleys, under POWER AND TRANSMISSION.

Belting.


Chain Driving.

See Belt Driving, under POWER AND TRANSMISSION.

Compressed Air.


Researches on the Escape of Compressed Air from Small Tubes and the Eddy Currents Set Up (Untersuchungen über den Ausfluss komprimierter Luft aus Kapillaren und die dabie auftretenden Turbulenzerscheinungen). Dr. Ruckes. Reports researches similar to those of Osborne Reynolds on water. Ills. 2500 w. Zeitschr d Ver Deutscher Ing—Dec. 28, 1908. No. 2107 D.

See also Air Meters, under MEASUREMENT; and Air Compression, under POWER AND TRANSMISSION.

Costs.

Notes on the Cost of Power. H. G. Stott. Compiled with the aim of showing the fundamental relations between the various items that make up the cost. 700 w. Diagrams. Pro Am Inst of Elec Engrs—April, 1909. No. 3959 F.

Costs of a Gas Engine and of a Combined Steam Plant. T. M. Chance. Considers the cost of operating and maintaining, under like conditions, a 1000-kw plant of each type, comparing the economy. 3000 w. Eng Rec—Sept. 4, 1909. No. 7559.


See also same title, under ELECTRICAL ENGINEERING, GENERATING STATIONS.

Electric Driving.

Industrial Engineering. H. W. Peck. Describes methods of solving the present day problems of power, giving method of determining the motor equipment re-
Electric Driving


Individual Motor Drive. W. B. Komvenhoven. Some of the advantages of the individual drive are stated and types of motors discussed. 2500 w. Ry & Loc Engng—Dec., 1908. No. 795 C.


The Advantage of Group or Individual Drive in Certain Installations. C. A. Graves. Aims to show why group or individual drive is preferable, giving examples. 3800 w. Elec Age—Sept., 1909. No. 7841.


The Installation of Electrical Power Plant. J. T. Corner. Deals with the general features and the various types of motors suited to each special kind of machinery, and the gearing of the motor to the machine. 1800 w. Mech Wld—Sept. 24, 1909. No. 8355 A.


Electricity in Building Operations. Describes the application of the electric drive to machinery used by builders and contractors. 3200 w. Elect'n, Lond.—Oct. 1, 1909. Serial. 1st part. No. 8485 A.

The Depreciation of Electric Plant. J. T. Corner. Aims to show how rapid deterioration may be prevented. 1500 w. Mech Wld—Oct. 15, 1909. No. 8888 A.

The Application of Motors to Machine Tools. Dexter S. Kimball. Discusses how far the individual drive may be carried with advantage, group driving and matters relating to it, speed control, etc. 4500 w. Mech Engr—Nov. 27, 1908. No. 858 A.

Characteristics of Motors for Large Shears. Brent Wiley. Outlines the conditions which the motor speed characteristics should meet, showing the importance of properly choosing so that the fly-wheel may do the cutting work. 3000 w. Pro Am Inst of Elec Engrs—Jan., 1908. No. 1365 F.


Electric Motors in Steel Mills. Comments of electrical engineers on the unusual problems worked out at Gary, Ind. 4000 w. Ir Age—May 20, 1909. No. 4765.


Electric Driving  


Electric Driving for Weaving Machinery. Albert Walton. Illustrates and describes applications of individual electric motors to the direct operation of looms. 3000 w. Cassier's Mag—July, 1909. No. 6346 B.


Electric Driving in a Paper Mill. Discusses the economy of electric driving in paper mills where steam is largely produced for heating and boiling and describes an English plant so equipped. Ills. 950 w. Elec Rev, Lond—May 28, 1909. No. 5417 A.


Electric Main Drives in German Mills. Eugene Eichel. Discusses the development of electric driving in Germany. The first part illustrates and describes the generators used. 5500 w. Ir Trd Rev—March 4, 1909. Serial, 1st part. No. 3961.


See also A. C. Motors, and Controllers, under ELECTRICAL ENGINEERING, DYNAMOS AND MOTORS; and Rolling Mills, under MINING AND METALLURGY, IRON AND STEEL.

Electric Power.


Electricity and Its Application to the Reduction of Waste. Arnold B. Gridley. Abstract of paper read before the Cleveland Inst. of Engrs. Considers its application to the reduction of waste of capital expenditure, labor, coal, oil, water, space, etc. 3500 w. Engng—March 5, 1909. No. 3174 A.

Electrical Accidents in Workshops. Information from report of G. Scott Ram, bearing upon the peculiar risks and dangers due to using electric power. 5500 w. Mech Engr—June 11, 1909. No. 5040 A.

See also Industrial Plants, under ELECTRICAL ENGINEERING, DISTRIBUTION.

Gas Compressors.


Gas Power

Power AND TRANSMISSION

MECHANICAL ENGINEERING

Gas Power

Diagrams. 1200 w. Ice & Refrig—Oct., 1909. No. 8314 C.


Gas Power


The Value of Gas Power. Charles E. Lucke. An illustrated article giving information on characteristics of the gas power installations, cost, etc. 5500 w. Sch. of Mines Qr—April, 1909. No. 5898 D.


See also Blast-Furnace Gas, under MINING AND METALLURGY, COPPER.

Gas vs. Steam.


Gearing.

Power Transmission by Toothed Wheels (Sulle Trasmissioni per Ruote dentate). Otorino Pominii. Begins a complete discussion of power transmission by gearing, with a consideration of the design of gear wheels. Serial, 1st part. 3300 w. Industria—July 18, 1909. No. 7242 D.

See also Gears, and Journal Loads, under MACHINE ELEMENTS AND DESIGN.

Gears.

The Lecoche Frictionless Transmission Gear. Illustrated description of this interesting new invention. 800 w. Engng—July 2, 1909. No. 6306 A.

Hydraulic Transmissions.


Lubricants.


See also Lubricant Testing, under MEASUREMENT; and Engine Lubrication, under STEAM ENGINEERING.

Lubrication.


The Brady Controllable Level Apparatus for Distributing Liquids. Diagrams and description of this lubricator, and some of its uses. 1200 w. Ir & Coal Trds Rev—Feb. 12, 1909. No. 2598 A.

See also same title, under AUTOMOBILES.

Mechanical Plants.

Mechanical Power in Country Houses. Illustrated description of an installation near Godalming, giving water supply and
MECHANICAL ENGINEERING

Mechanical Plants

POWER AND TRANSMISSION

Power Plants

Electrical equipment. 2200 w. Engng—Dec. 11, 1908. No. 1214 A.

The Mountain Residence, at Arden, N. Y., of Mr. E. H. Harriman. Lucy Cleveland. Describes especially the plant for heating, lighting and water supply, of this fine 69-room residence, with its 13 halls and 30 bath-rooms. Ills. 4500 w. Dom Engng—Aug. 21, 1909. No. 7188.


Heating and Ventilating the National City Bank, New York. Illustrates and describes the mechanical equipment of this building. 1500 w. Heat & Vent Mag—June, 1909. No. 5554.


Design of a New Heating and Power Plant for the University of Minnesota. Presents the general layout of machines and apparatus for a plant to heat a group of buildings. 2000 w. Minn Engr—Nov., 1908. No. 1361 C.


Power Plants


Comparative Efficiencies of Power Plants, With Special Reference to the Efficiency of a Superheated Steam Pipe-Line. Frank R. Brownlee. An account of investigations made. 5000 w. Wis Engr—June, 1909. No. 5691 D.

The Small Economics of a Power Plant. A. S. Atkinson. Urges the adoption of
MECHANICAL ENGINEERING

Power Plants


The Reorganization of Factory Power Plants. Describes points of importance in such work. 1500 w. Mech Wd—Dec. 18, 1908. Serial. 1st part. No. 1388 A.


Power Equipment of the New Hecker Flour Mills, New York City. Briefly describes this recently completed mill on the East River, the largest on the Atlantic Coast. Describes the solution of interesting driving problems. Ills. 3500 w. Eng Rec—March 27, 1909. No. 3542.

Power Plant of West Point Military Academy. Illustrated detailed description of the plant for lighting, heating and power purposes. 6000 w. Power—April 27, 1909. No. 4309.


The New Keystone Watch Case Co. Plant. F. L. Johnson. Illustrated account of how an old plant was re-modeled without interrupting the service. 2500 w. Power—June 15, 1909. No. 5492.


See also Coal Bunkers, under CIVIL ENGINEERING, CONSTRUCTION; Gas Power Plants, under COMBUSTION MOTORS; and Isolated Plants, under ELECTRICAL ENGINEERING, GENERATING STATIONS.

Power-Plant Testing.


Pulleys


Rope Driving.


The Gearing of Modern Cotton Spinning Mills. The remarks usually apply to either the Blackburn or Oldham district, but are of universal application. Rope-driving only is discussed. 1000 w. Mech Wld—Oct. 1, 1909. Serial. 1st part. No. 8476 A.

Rope-Driving at Rolling Mills and Collieries. Descriptions and illustrations from paper before the S. Wales Inst. of Engrs. 1500 w. Ir & Coal Trds Rev—March 5, 1909. No. 3180 A.

The Design of Chain and Rope Transmission Systems for Maximum Life (Comment construire les transmissions par Câbles ou par Chaînes pour réaliser le Maximum de Durée des Organes tracteurs). Ernst Heckel. Translated from Stahl und Eisen. Ills. 4000 w. All Indus—June, 1909. No. 6542 D.

See also Belt Driving, under Power and Transmission.

Shaft Bearings.

Line Shaft Bearings. Hugo Presser. Shows the importance of uniformity in their supports. Ills. 2500 w. Ind Engng—Sept. 15, 1909. No. 8090 C.

Shafting.


Methods of Attaching Shafting, Piping, Etc., to Reinforced Concrete Buildings. Gives sketches of a variety of forms of hangers for both shafting and piping, with description. 1000 w. Engng-Con—Sept. 29, 1909. No. 8229.

Solar Energy.

Power from the Sun's Heat. Illustrates and describes what has been accomplished by Frank Shunan at Philadelphia. 3500 w. Eng News—May 13, 1909. No. 4644.


Tidal Power.


Turbo-Compressors.


Turbine Blowers (Ueber Turbogebäste.) H. Naville. Reviews their development, theory, construction and operation, and describes installations. Ills. 3100 w. Stahl u Eisen—April 7, 1909. No. 4801 D.


High-Pressure Turbo-Compressors and the Utilization of Exhaust Steam (Turbo-Compresseurs à haute Pression et Utilisation des Vapeurs d'Echappement). A.
Wind Power. Abstracted from the Revue Universelle des Mines. Ills. 6000 w. All Indus—April, 1909. No. 4827 D.


Wind Power.


Wind Turbines. Brief illustrated description of a recent type. 500 w. Engr, Lond—June 18, 1909. No. 6052 A.


STEAM ENGINEERING

Air Pumps.

An Improved Form of Air Pump. Describes a form of air pump in which the condensed water and air from the condenser enter the pump by separate inlets. Ills. 1800 w. Prac Engr—Aug. 27, 1909. No. 7643 A.


Ash Handling.

See Conveyors, under TRANSPORTING AND CONVEYING.

Boiler Cleaning.


Boiler Corrosion.


The Corrosive Action of Magnesium and Other Waters on Steam Boilers. Dr. J. Grossmann. Reviews the investigations made by H. Ost, published in 1902, and states the results. Also gives method of determining in a general way, the effect of different waters. 2200 w. Engr, Lond—March 12, 1909. No. 3424 A.


Boiler Design.


The Development of a Boiler Horsepower. William Kent. An analysis of the number of square feet of heating surface necessary to develop one horsepower. 2500 w. Ind Engng—Aug. 15, 1909. No. 7178 C.


Influence of Strap on Lap Boiler Seams. S. F. Jeter. Government tests show that strap must always add some strength to
MECHANICAL ENGINEERING

Boiler Design

the joint. 2000 w. Power—Nov. 24, 1908. No. 469


The Best Form of Longitudinal Joint for Boilers. F. W. Dean. Describes a recommended joint with both straps of the same width. 1000 w. Jour Am Soc of Mech Engrs—Oct., 1909. No. 85·11 F.


See also Flat Plates, under MACHINE ELEMENTS AND DESIGN; and Stacks, under STEAM ENGINEERING.

STEAM ENGINEERING

Boiler Draft.


Boiler Efficiency.

The Economical Production of Steam (Etude sur la Production économique de la Vapeur). M. Izart. The first part of a serial dealing exhaustively with all the factors influencing boiler economy. Efficiency of heat transmission is here considered. Ills. Serial, 1st part. 9500 w. Rev de Mécan—July, 1909. No. 7205 E + F.

Boiler Explosions.


Boiler Explosions in England, Germany, and the United States. Gives a comparison of statistics showing the United States to be far behind in the safe use of high-pressure steam. 2000 w. Locomotive—April, 1909. No. 5544.
MECHANICAL ENGINEERING

Boiler Explosions

Summary of Boiler Explosions in France During 1907 (Bulletin des Accidents d'Appareils à Vapeur survenus pendant l'Année 1907). Gives the character, circumstances, consequences and supposed causes. 4400 w. Ann d Ponts et Chaussées—1909-IV. No. 7012 E + F.


Accidents in Boiler Practice (Unfälle im Dampfkesselbetriebe). A report on boiler explosions in the Dartmund-Essen district, Germany. IIs. 2500 w. Glückauf—Sept. 4, 1909. 8662 D.


The Hull Heating Boiler Explosion. A report of the investigation to determine the cause of the explosion of the high-pressure hot-water boiler in a school building, 3000 w. Mech Engr—Aug. 20, 1909. No. 7431 A.


Notes on the Explosion of Two Boilers at Eigelshoven (Opmerkingen over de Ontholofing van twee Stoomketels te Eigelshoven). Two articles, by F. van Iterson and Chr. Hovestad. IIs. 5000 w. De Ingenieur—Sept. 4, 1909. No. 8919 D.

Boiler Failures.

Some Recent Board of Trade Reports on Boiler Failures. Brief illustrated reports of 16 cases. 2500 w. Mech Engr—Feb. 19, 1909. No. 2885 A.

Boiler Feeding.

Boiler Feeding (Kesselspeisevorrichtungen). A. Laponche. Discusses the various types of pumps and methods of driving. IIs. 5500 w. Die Turbine—June 5, 1909. No. 6581 D.

See also Venturi Meters, under MEASUREMENT.

Boiler Firing.

Firing Cheap Grades of Coal Economically. William Kavanagh. Discusses the three methods usually employed in banking, the systems of firing, etc. 1000 w. Elec Wld—Sept. 2, 1909. No. 7530.

Boiler Fittings.


See also Safety Valves, under STEAM ENGINEERING.

Boiler Furnaces.


MECHANICAL ENGINEERING

Boiler Furnaces

Bridgewalls in Theory and Practice. W. H. Wakeman. Describes defects in bridgewalls, some too low, some too high, etc. 1000 w. Power—March 9, 1909. No. 3039.


Tube Tiles Used to Form Furnace Roofs. A. Bement. Illustrates and describes the encircling of the lower row of tubes in a water-tube boiler with refractory firebrick tiles to increase efficiency and prevent smoke. 1200 w. Power—April 6, 1909. No. 3766.


See also Fuels, under STEAM ENGINEERING.

Boiler Inspection.


The Inspection of Steam Boilers. James F. Hobart. Remarks on necessary tools and clothes for the purpose, giving a list of questions, and practical instruction. 4500 w. Power—Nov. 24, 1908. No. 468.


Boiler Leakage.


Boiler Management.


Utilization of Waste Heat in Firing with Bituminous Coal (Über die Verwertung der Abhitze von Steinkohlen-
Boiler Operation


See also Hot Water Heating, under HEATING AND COOLING; and Smoke Prevention, under STEAM ENGINEERING.

Boiler Operation.

The Division of Work in a Boiler. T. F. J. Maguire. An analysis of the efficiency of the various parts of the heating surface. 2500 w. Ind Engng—July 15, 1909. No. 6680 C.

Boiler Plants.


Boiler Rating.


Boiler Regulations.


Boiler Repairs.


The Diagonal Patch. R. E. McNamara. Describes this method of remedying a bag, where the condition will permit its application, giving calculations and costs. Ills. 1800 w. Boiler Maker—July, 1909. No. 6187.


Boilers.


The Erie City Vertical Water-Tube Boiler. Illustrated description of details of construction, circulation, etc. 1500 w. Ir Age—Aug. 19, 1909. No. 7133.


The Jacobi Boiler and Superheater (Der Jacobi-Kessel und Jacobi-Uheheritzer). C. Forst. Illustrated description. Serial. 1st part. 1500 w. Die Turbine—Nov. 20, 1908. No. 1159 D.


MECHANICAL ENGINEERING

Boiler Scale

Herr Generlich. Illustrated description with test results. 1800 w. Zeitschr d Ver Deutscher Ing—Sept. 4, 1909. No. 8910 D.

See also Pumping, under HYDRAULIC MACHINERY.

Boiler Scale.


Boiler Settings.

Steam Boilers and Brickwork. Suggestions for the setting of boilers, with a statement of the advantages of the Poulton setting. 2000 w. Col Guard—July 23, 1909. No. 6846 A.

Boiler Tests.


STEAM ENGINEERING

Boiler Tubes

Tests on Boiler Evaporation at Broken Hill, Block 10. E. F. Stanley Low. Experimental tests to show to what extent the evaporative efficiency could be increased by stoking in such a manner as to increase the percentage of carbon dioxide in the flue gases. Diagrams. 3000 w. Aust Min Stand—Nov. 18, 1908. No. 1094 B.


Evaporation Tests (Essais de Vaporisation). Victor Lebeau. Details tests on a B. & W. boiler to determine the most economical fuel. Ills. 12000 w. All Indus—May, 1909. No. 5733 D.

See also Boiler Management, under STEAM ENGINEERING; and Pumping, under HYDRAULIC MACHINERY.

Boiler Theory.

The Transmission of Heat Between Fluids. R. M. Neilson. A scientific discussion giving data that can readily be applied in practice. 3500 w. Engr, Lond—Feb. 12, 1909. No. 2702 A.


Heat Transmission. W. E. Dalby. Research work with the aim of presenting a general view of the work which has been done relating to the transmission of heat across boiler heating surfaces. 12000 w. Inst of Mech Engrs—Oct. 15, 1909. No. 8763 N.

Boiler Tubes.


MECHANICAL ENGINEERING

Boiler-Water Meters


Boiler-Water Meters.

See Condenser Meters, under STEAM ENGINEERING.

Boiler Waters.

The Boiler Water. Edward Bartow. The troubles caused by water and the remedies are considered. 2500 w. Am W-Wks Assn—June, 1909. No. 5916 N.


Boiler Feed-Water and Its Treatment. J. R. Campbell. Discusses waters found in the Pittsburg district and the methods and materials used in treating them. 2800 w. Mines & Min—Feb., 1907. No. 2229 C.


The Chemical Aspect of Impurities in Steam Boilers. J. C. William Greth. Read before the Am. Inst. of Chem. Engrs. Describes the salts that enter into scale formation, the action of corrosive acids and salts, the requirements to properly soften and purify a water, etc. 6000 w.


Condensers


See also Boiler Corrosion, and Feed-Water Heating, under STEAM ENGINEERING; Analysis, under CIVIL ENGINEERING, WATER SUPPLY; Rand, under MINING AND METALLURGY, GOLD AND SILVER; and Locomotive Feed Water, under RAILWAY ENGINEERING, Motive Power and Equipment.

Condenser Meters.


Condensers.


The Theory of Steam Condensers. Thomas C. McBride. A statement of the fundamental laws governing the operation of condensers, the measurements to be taken, and the instruments employed. Discussion. 4500 w. Pro Engrs’ Club of Phila—Oct., 1908. No. 4322 D.

Condensers and the Economy of Their Use. Charles L. Hubbard. Discusses the action and economy of the usual types as compared with a non-condensing plant.
Condensers


The Choice of a Condenser. Francis Hodgkinson. Discusses the different types and points out the particular applications of each. 3000 w. Elec Jour—July, 1909. Serial, 1st part. No. 6436.


The Relationship Between Condenser and Air Pump. R. M. Neilsen. Considers partial pressures, factors influencing the transmission of heat from the steam to the condensing water, the air-pump’s influence on the condenser, and condenser’s influence on the air-pump. 4500 w. Engr, Lond—Aug. 6, 1909. No. 7107 A.


Development of the Surface Condenser.

Warren O. Rogers. Illustrates and describes types, beginning with Watt’s, and including the most modern apparatus. 1600 w. Power—Feb. 9, 1909. Serial, 1st part. No. 2379.


Evaporative Condenser at Southend. Illustrated description of a very large plant embodying the latest improvements. 1500 w. Engr, Lond—April 23, 1909. No. 4468 A.


The Leblanc Ejector Condenser. Illustrated description of the rotary air-pump and condenser invented by Maurice Leblanc. 700 w. Engng—May 7, 1909. No. 4725 A.
Condensers

The Design of Suction and Delivery Pipes for Condensing Plants. Discusses points in the design. 3500 w. Elec Rev, Lond—April 23, 1909. No. 4448 A.


The Consummate Evaporative Condenser. Illustrated description of this condenser as installed in the Bermondsey supply station, with some figures of tests and costs. 800 w. Engr, Lond—Oct. 1, 1909. No. 8498 A.

See also same title, under MARINE AND NAVAL ENGINEERING; Turbines, and Air Pumps, under STEAM ENGINEERING; and Steam Engines, under MARINE AND NAVAL ENGINEERING.

Condensing Plants.

Pumps and Turbines for Condensing Plants. Illustrated description of plants where the water used for condensing is made to perform useful work. 700 w. Engr, Lond—May 14, 1909. No. 4971 A.

Cooling Towers

See same title, under HEATING AND COOLING; and Condensers, under STEAM ENGINEERING.

Economizers.


Engine Design

Steam Engine Counterbalancing. F. H. Ball. Describes the problem of balancing and describes an engine in which practically perfect balance has been achieved by simple means. 2000 w. Ir Age—March 18, 1909. No. 3215.

Engine Bearings.


Engine Capacity.


Engine Cylinders.

Thick Cylinders. P. M. Gallo. Gives formulae commonly used to calculate the thickness for a given pressure, and a diagram based on formula developed by the writer. 3000 w. Mach, N Y—July, 1909. No. 6668 C.


Engine Defects.


Engine Design.

Present-Day Practice in High-Speed Engine Design. Considers points that govern the design and some of the details found successful. 1500 w. Mech Wld—Jan. 8, 1909. Serial. 1st part. No. 1815 A.


Steam Engine Design. The present article discusses general proportions, cylinder ratios, cut-off and expansions, temperature range and pressures. 1200 w. Prac Engr—March 26, 1909. Serial, 1st part. No. 3782 A.
MECHANICAL ENGINEERING

Engine Design


The Ideal Piston Pin. Horace L. Arnold. Aims to show that a very large diameter, soft-steel piston pin can be placed without trouble, and that fixing the piston pin in the rod end is better in every way than fixing the pin in the piston bosses. Ills. 1200 w. Am Mach—Vol. 32. No. 34. No. 7348.

Engine Efficiency.


See also Steam Engines, under MARINE AND NAVAL ENGINEERING.

Engine Erection.


Erecting an Engine. F. Wiegand. The present article deals with the piston and reciprocating parts. 3000 w. Power—Sept. 28, 1909. No. 8145.

Engine Failures.


Engine Flywheels.

Variation in Angular Velocity of Flywheels. Alex. R. Horne. Describes a method of determining the variation in angular velocity and the angular lag and lead of an engine fly-wheel from the diagram of crank effort by means of a planimeter. 1500 w. Engng—May 28, 1909. No. 5363 A.

Engine Foundations.


See also Foundations, under CIVIL ENGINEERING, CONSTRUCTION.

Engine Governing.


Engine Lubrication.


See also Lubricants and Lubrication, under POWER AND TRANSMISSION.

Engine Management.

See Isolated Plants, under ELECTRICAL ENGINEERING, GENERATING STATIONS.

Engine Operation.

Analysis of Steam and Inertia Forces. F. W. Hollman. Graphical explanation of the inertia forces of a tandem-compound engine and their combination with the
MECHANICAL ENGINEERING

Engine Pistons

steam forces in each cylinder. 1200 w. Power—April 6, 1909. No. 3765

Engine Pistons.

Pistons and Piston Valves. The first of a series of illustrated articles deals principally with piston packings, and the principles under which packing rings should work. 4000 w. Engr, Lond—June 18, 1909. Serial, 1st part. No. 6047 A.

Engine Pressures.


The Influence of Steam Pressure, Speed of Rotation, and Number of Expansions Upon the Mean Effective Pressure and Steam Consumption of Steam Engines. R. Royds. Discusses the best methods of experimenting in this field. Diagrams. 4500 w. Inst of Engrs & Shipbdrds in Scotland—April 27, 1909. No. 4009 N.

Engine Relief Valves.

Relief Valves. Remarks on their Design. Ills. 1000 w. Mech Wld—Nov. 20, 1908. No. 726 A.

Engines.


Compound Horizontal Engine with Recke-Ruston Valve-Gear. Illustrated description of a large compound side-by-side engine designed to work with superheated steam. 700 w. Engng—Jan. 1, 1909. No. 1705 A.


Compound Semi-Portable Engine and Superheater. Brief illustrated description of an engine of this type. 900 w. Engr, Lond—April 9, 1909. No. 4040 A.

Tandem Compound Condensing Semi-Portable Engine. An illustrated description of Wolf's semi-portable engine, with report of tests undertaken to ascertain the steam and coal consumption, efficiency, and general working. 3000 w. Engng—Oct. 8, 1909. No. 8893 A.

The "Lowca" High-Pressure Engine. Illustrated description of an engine designed to work with steam at pressures of as much as 1000 lbs. per square inch, and at temperatures up to 1000 deg. Fahr. 1000 w. Engng—June 25, 1909. No. 6280 A.

The Lanz Locomotive. Illustrated description of an engine exhibited at Olympia which has many unusual features. 1500 w. Engr, Lond—Dec. 4, 1908. No. 1024 A.


MECHANICAL ENGINEERING

Economy of Four Valve Engines. Thomas Hall. A defense of this type, with criticism by F. W. Dean. 3000 w. Power—June 22, 1909. No. 5814.


See also Gas vs. Steam, under Power and Transmission; Steam Engines, under Marine and Naval Engineering; and Hoisting Engines, under Mining and Metallurgy, Mining.

Engine Speed.


Engine Tests.


Engine Theory.


Entropy.

The Question of Entropy. A paper by J. Swinburne, replying to a previous paper by Prof. S. A. Reeve, with also a reply by Prof. Reeve to Mr. Swinburne's paper. 6000 w. Harvard Engg Jour—Nov., 1908. No. 1322 D.


Flue-Gas Analysis.


Fuel Contracts

Simplified Results From Flue Gas Analyses. Frank Kingsley. Gives a formula based on the percentage of nitrogen to establish the percentage of excess air, with explanation and diagrams illustrating their use. 1800 w. Eng Rec—Aug. 21, 1909. No. 7308.

The "Krell" Continuous CO Recorder. Diagram and description with explanation of the method of operation. 1500 w. Elec Engr, Lond—May 14, 1909. No. 4942 A.

Fuel Contracts.

See same title, under MARINE AND NAVAL ENGINEERING; and Fuels, under STEAM ENGINEERING.

Fuel Gas.

See Gas Producers, under COMBUSTION MOTORS.

Fuel Oil.


See also Oil Fuel, under MARINE AND NAVAL ENGINEERING.

Fuels.


Some Fundamental Considerations on Coal. W. Jones. Considers the use of coal in raising steam and the importance of analysis, and of building the furnace to suit the coal to be used. 1300 w. Elec Chem & Met Ind—Jan., 1909. No. 1676 C.


Coal Specifications and Tests. A. V. Doane. Discusses things to be considered in specifying, methods of sampling and testing, etc. 2500 w. Power—Feb. 2, 1909. No. 2187.


MECHANICAL ENGINEERING

STEAM ENGINEERING

Fuel Purchasing


Tan Bark as a Boiler Fuel. David Moffat Myers. Considers the characteristics of wet spent tan bark as a boiler fuel. 6500 w. jour Am Soc. of Mech Engrs—Oct., 1909. No. 8530 F.

See also Boiler Tests, under STEAM EN. Peat, Shrinkage, and Texas, under MINING AND MEATALLURGY, COAL AND COKE; and Locomotive Fuels, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS.

Fuel Specifications.

The Purchase of Coal by the City of New York. Extracts from a report by Otto H. Klein, concerning present practice and proposed specifications based on heat units contained. 1700 w. Eng News—Sept. 9, 1909. No. 7227.

Fuel Testing.


Heat Value of Coal from Dulong's Formula. Based on Ultimate Analysis. N. A. Carle. Aims to cover the determination of the probable total heat of combustion from the chemical analysis, and gives a chart showing graphically the heat value as calculated by this formula. 800 w. Power—May 11, 1909. No. 4587.


See also Calorimetry, under MEASUREMENT; and Analysis, under MINING AND METALLURGY, COAL AND COKE.

Fuel Purchasing.


The Purchase of Municipal Coal Supplies in New York City. Information from a report by Messrs Walter N. Polakov and William A. Russell to the Board of Apportionment of New York, on preventable wastes and losses in the plants of the municipal government of the city. 3000 w. Eng Rec—March 20, 1909. No. 3269.

The Purchase of Fuel on a British Thermal Unit Basis. Lawrence P. Creceilius. Explains the method adopted in Cleveland, Ohio, of purchasing coal on the basis of calorific value. 4000 w. Pro Am Inst of Elec Engrs—June, 1909. No. 5838 F.

The Purchase of Coal Upon a Heat Value Contract. Edward H. Taylor. Considers the causes that have led to the purchase of coal upon specifications, the contract, and related subjects. 18000 w. Am W-Wks Assn—June, 1909. No. 5928 N.


Low-Grade Fuels and the Power Plant. C. M. Ripley. Considers the relative values of steam fuels, use of coke screenings, low-grade fuels, etc. 2000 w. Elec Wld—April 1, 1909. No. 3754.

Coal for Hand-Fired Steam Plants. D. T. Randall. Reports results of tests that show that almost any character of coal may be burned with reasonable efficiency. Diagrams. 1500 w. Am W-Wks Assn—June, 1909. No. 5911 N.


An Experimental Study of Bagasse and Bagasse Furnaces. E. W. Kerr and E. M. Percy. Reports and investigation of the methods of utilizing the heat from this
MECHANICAL ENGINEERING

Heat
this method of purchase into practical operation. 3500 w. Min Wid—Oct. 9, 1909. No. 8460.

Heat.

Heat Storage.

Heat Transmission.
The Transmission of Heat Through Boiler Plates. The first of a series of articles aiming to concentrate all the useful information concerning the transmission of heat to water under the ordinary conditions of steam generation. 4500 w. Engr, Lond—Feb. 19, 1909. Serial. 1st part. No. 2900 A.

See also Boiler Theory, under STEAM ENGINEERING.

Indicator Diagrams.


Some Suggestive Indicator Diagrams. W. G. McKellar. Discusses diagrams of a number of engines running from 10 to 30 horsepower. 4000 w. Jour W of Scotland Ir & St Inst—Nov. and Dec., 1908. No. 2431 N.

Indicators.
The Hopkinson Flashlight Indicator. Illustrated description of an indicator for high speeds. 800 w. Engng—Dec. 11, 1908. No. 1216 A.

See also Steam Engines, under MARINE AND NAVAL ENGINEERING.

Injectors.


Mechanical Stokers.


Recent Boiler Stoking Plants Built by Carl Schenck, Darmstadt (Neuere Kesselbevohlanlagen gebaut von Carl Schenck, Darmstadt). Oskar Brix. Illustrates the arrangement of bunkers, conveying devices and mechanical stokers in several plants. Serial, 1st part. 5500 w. Zeitschr d Ver Deutscher Ing—March 6, 1909. No. 4291 D.

Oil Fuel.
See Fuels, under STEAM ENGINEERING; and Oil Fuel, under MARINE AND NAVAL ENGINEERING.

Oil Separators.

Piston Rinks.
Piston Packing Rings. James Andrews. Read before the W. of Scotland Assn. of Foremen Engrs. Shows that the same packing rings do not behave alike in all cases, and gives a study of their action under various conditions. Ills. 6500 w. Mech Engr—March 12, 1909. No. 3412 A.
Piston Speed


Piston Speed.


Safety Valves.


Safety Valve Capacity. Philip G. Darling. Illustrates and describes a method employed to determine safety valve lifts, giving results of tests. 4500 w. R R Age Gaz—March 5, 1909. No. 3032.


Smoke Prevention.

Smoke Prevention or Smoke Consumption. Harold V. Coes. First of series of articles discussing smoke prevention in stationary steam-boiler practice, deals with the causes of smoke and the methods and devices which tend to make possible smokeless combustion in hand-fired furnaces. 3500 w. Engineering Magazine—June, 1909. No. 4988 B.

Smoke Prevention or Smoke Consumption. Harold V. Coes. This second article of a serial discusses automatic stokers, describing leading types. Ills. 5500 w. Engineering Magazine—July, 1909. No. 5972 B.
Smoke Prevention


The Reduction of Smoke in Factory Districts (Zur Frage der Rauchverminderung im Industriebezirke). Dr. Klocke. Discusses the smoke nuisance in cities and describes methods and apparatus designed to lessen it. Ills. 2800 w. Stahl u Eisen—Feb. 3, 1909. No. 3358 D.

Stacks.


See also same title, under CIVIL ENGINEERING, CONSTRUCTION.

Steam Calorimeters.


Steam Compression.


The Composition of Steam and Its Application to Evaporation (De la Compression de la Vapeur appliquée à l’Evaporation). Jean Rey. Discusses the phenomena of steam compression, compressing machinery and the use of compressed steam in the evaporation of aqueous solutions, etc. Ills. 7500 w. Mem Soc Ing Civ de France—April, 1909. No. 5711 G.

Steam Consumption.


Steam Generation.


Steam Headers.


Steam Loop.


Steam Meters.


Steam Pipes.


Flanged Pipe Joints for High Pressure. William F. Fischer. Illustrates and describes types of screwed joint, shrunk,
Steam Pipes

STEAM ENGINEERING

Steam Properties

Steam Properties.

Jour Am Soc of Mech Engrs—Nov., 1908. No. 644 F.

The Total Heat of Saturated Steam. Dr. Harvey N. Davis' paper is discussed. 5000 w. Jour Am Soc of Mech Engrs—Feb., 1909. No. 2411 F.


Energy in a Pound of Steam. Fred. R. Low. Demonstrates that the net energy of expansion from 130 pounds down to atmospheric pressure approximates energy from atmospheric pressure down to 27 1/2 inches of vacuum. 3000 w. Power—Feb. 2, 1909. No. 2186.


Formulate Connecting the Pressure and Temperature of Saturated Steam. S. Godbeer. Reviews briefly the data available, and develops a new formula. 1500 w. Engng—Aug. 6, 1909. No. 7102 A.


Banki's Steam Diagram (Diagramme de M. Banki pour la Vapeur d'Eau). Translated from Zeitschrift für das Gesamte Turbinenwesen. Gives a diagram showing
MECHANICAL ENGINEERING

Steam Separators

the temperature drop in calories in adiabatic expansion with explanation of its use. Ills. 2500 w. Rev de Mécan—Nov., 1908. No. 1110 E + F.

See also Entropy Diagram, and Superheated Steam, under Steam Engineering.

Steam Separators.


Stokers.


Stoking.


Methods of Firing Cheap Grades of Bituminous Coal. William Kavanagh. Describes briefly the six ways in which soft coal can be fired. 1000 w. Elec Wild—May 6, 1909. No. 5036.


Firemen (Du Chauffeur). Ant. Michot. Discusses the training of firemen, the principles of economical stoking, the Liége firemen’s competition, etc. Serial. 1st part. 4000 w. All Indus—Feb., 1909. No. 3328 D.

The Skill of Firemen (L’Habité professionnelle des Chauffeurs). J. Izart. Gives the results of an annual firemen’s competition at Lille for six years showing how much firemen may be improved by careful training. 2000 w. L’Elec—Jan. 9, 1908. No. 2629 D.

See also Smoke Prevention, under Steam Engineering.

Superheated Steam.


See Engine Tests, under Steam Engineering.

Superheaters.

Superheaters. Frank Hugh Preece. Brief discussion of their design and advantages, with illustrated descriptions of the principal types now in use. 3500 w. Inst of Civ Engrs—No. 3719. No. 2790 N.

See Boilers, under Steam Engineering.

Superheating.

The Properties of Superheated Steam. Henry T. Eddy. Gives results of recent experimental investigations as to the specific heat of superheated steam, aiming to place the information in a form readily applicable. Charts. 1500 w. Minn Engr—March, 1909. No. 4065 C.


A New Principle in Superheaters. Illustrated description of the “Unit Superheater,” which provides a system of expanded flows. 1200 w. Ir & Coal Trds Rev—April 23, 1909. No. 4475 A.

Superheated Steam (La Vapeur d’Eau surchauffée). L. Marchis. A review of
MECHANICAL ENGINEERING

Superheating

the properties of superheated steam and of the design and operation of superheating apparatus. Ills. Serial. 1st part. 4500 w. Tech Mod—April, 1909. No. 4830 D.

Superheating in Marine Practice (L’Application de la Surchauffe aux Moteurs de Navires.) O. H. Wildt. Discusses the application and economy of superheated steam in marine engines and turbines, superheaters, etc. Ills. 4000 w. Génie Civil—April 17, 1909. No. 4840 D.

See also Pumping Engines, under HYDRAULIC MACHINERY; and Power Plants, under POWER AND TRANSMISSION.

Thermodynamics.

Thermodynamics in Theory and Practice. Considers the points requiring further investigation and the present value of the theory. 1500 w. Engr, London—June 11, 1909. No. 5634 A.

Turbine Balancing.


Turbine Design.


The Design of Thrust Bearings for Horizontal and Vertical Turbine Machinery (Kammllerkonstruktionen sowie deren Berechnung bei Turbosmaschinen mit Horizontaler und vertikaler Welle). Emil Gutmann. Describes types and discusses the principles of design. Ills. 2700 w. Die Turbine—July 5, 1909. No. 7287 D.

Turbine Efficiency.

Steam-Turbine Efficiency. Editorial on the inaccuracy of the statement that the efficiency is less when the number of stages is increased. 2500 w. Engng—Feb. 19, 1909. No. 2893 A.

Turbine Governor.


See also Operation, under ELECTRICAL ENGINEERING, GENERATING STATIONS.

Turbine Losses.


Turbine Nozzles.

The Temperature Gradient in De Laval Steam-Nozzles (Abridged). Cyril Batho. Describes researches made to determine the temperature gradient along a steam-turbine nozzle. 4000 w. Inst of Civ Engrs—No. 3713. No. 3505 N.


Turbine Operation.


Turbine Plants.


Plant in Public Service Building, Milwaukee. Osborne Monnett. Illustrated description of a large non-condensing turbine plant, operating against 22 pounds absolute back pressure, to furnish exhaust steam for district heating. 2500 w. Power—March 9, 1909. No. 3037.
MECHANICAL ENGINEERING

Turbine Plants

Remarkable Plant of the St. Clair Tunnel. Osborn Monnett. Illustrates and describes a turbine plant able to carry a load varying instantly from zero to 100 per cent. overload. 3500 w. Power—June 29, 1909. No. 6019.


Turbine Regulation.


Turbines.


A Review of Steam Turbine Development. Discussion of the progress of different types of turbines, with a consideration of their shortcomings. 3500 w. Engr, Lond—May 28, 1909. No. 5265 A.


The Development of Steam Turbines, Particularly of the Impulse Type (Du Développement des Turbines à Vapeur et particulièrement de la Turbine à Action). M. Reuter. Translation from Zeitschrift des Vereins Deutscher Ingenieure. Ills. 5000 w. All Indus—Nov., 1908. No. 1118 D.


The Development of the Small Steam Turbine. Charles A. Howard. This second, and concluding part discusses the service applications to which this type of prime mover is particularly adapted. 4000 w. Engineering Magazine—Jan., 1909. No. 1327 B.


Steam Turbines of Low Power (Einiges über Dampfturbinen für geringe Leist-
MECHANICAL ENGINEERING

Turbines

STEAM ENGINEERING

Turbines

ung). R. Roskowitz. A discussion of their development, types, design, etc. Ills. Serial, 2200 w. Zeitschr f d Gesamte Turbinenwesen—Nov. 10, 1908. No. 1160 D.

Small Steam Turbines (Les petites Turbines à Vapeur). Jules Vinsonneau. Refers particularly to the uses of, and results obtained with, the Brien turbine. Ills. 3500 w. Rev Indus—April 10, 1909. No. 4828 D.

The Field and Future of the Low-Pressure Steam Turbine. Ira N. Hollis. This first article of a series discusses the fundamental theory and fields of usefulness. 4000 w. Engineering Magazine—April, 1909. No. 3524 B.

The Field and Future of the Low-Pressure Steam Turbine. Ira N. Hollis. This second paper of a series considers the development and applications of low-pressure turbines to stationary service in America. Ills. 2500 w. Engineering Magazine—May, 1909. No. 4338 B.


The Low Pressure Steam Turbine. Charles B. Burleigh. Abstract of a paper read before the Nat. Assn. of Cotton Mfrs. Discusses the uses to which it may be applied with advantage. 2500 w. Power—Nov. 17, 1908. No. 295.


The Utilization of Exhaust Steam in Low-Pressure Turbines. R. F. Halliwell. Read before the Rugby Engng. Soc. Discusses the more important features of low-pressure turbine plants, showing the economies that can be effected by their use. 2500 w. Mech Engr—Jan. 29, 1909. Serial, 1st part. No. 2352 A.


The Low Pressure Turbine Combined with the Steam Engine. Edwin D. Dreyfus. A study of the application of the low-pressure turbine under certain definite conditions, showing a method of determining the relation between the various elements considered which will give the most satisfactory operation. Ills. 3000 w. Elec Jour—Oct., 1909. No. 8566.

Steam Turbines with High Back Pressure (Dampfturbine mit hoher Gegendruck). H. Wagner. Discusses their operation in a number of cases. Ills. 2500 w. Zeitschr f d Gesamte Turbinenwesen—Jan. 9, 1909. No. 2695 D.

The Utilization of Steam in Low-Pressure Turbines (Abdampfverwertung und neuere Abdampfanlagen). Hugo Weinberger. Discusses the energy in exhaust steam and describes a number of low-pressure turbine plants, with data on their economy. Ills. 4000 w. Zeitschr d Oest Ing u Arch Ver—Jan. 1, 1909. No. 2812 D.


Exhaust Steam Turbines. J. W. Kirkland. Explains how the exhaust, or low pressure, steam turbine makes it possible to transform to useful work the available energy of steam in the lower pressure ranges, and electric power produced at less cost. Ills. Discussion. 5000 w. Jour S African Assn of Engineers—Aug., 1909. No. 8333 F.


Exhaust Steam Turbines. Editorial discussion of the prevailing tendency to use the low pressure turbine as supplemental to non-condensing plants. 1100 w. Elec Age—May, 1909. No. 5427.


Low Pressure Turbines. F. M. Lege, Jr. Discusses the possibilities of the low pressure steam turbine when operated by the exhaust steam of an existing reciprocating plant. Abstract of paper before the Southwestern Elect. and Gas Assocation. 2200 w. Elec Ry Jour—June 5, 1909. No. 5254.


Oerlikon Steam Turbines. Illustrated detailed description of the latest type of these machines. 2200 w.Elect,n, Lond—Dec. 4, 1908. No. 1008 A.

The Oerlikon Steam Turbine (Dampfturbine Oerlikon). Illustrated detailed description. 2200 w. Die Turbine—Sept. 5, 1909. No. 8675 D.


The Melms-Pfenninger Steam-Turbine. Illustrated detailed description of an attempt to combine the advantages of both the impulse and reaction types of turbine, which seems to be successful. Plate. 2500 w. Engng—July 9, 1909. No. 6423 A.


1st part. 1800 w. Die Turbine—April 20, 1909. No. 4880 D.

Steam Turbines, with Special Reference to the Zoelly Turbine (Stoomturbines met speciale Vermelding der Zoelly-Stoomturbine). J. Strumplher. Discusses their design and operation. Ills. 6000 w. De Ingenieur—Feb. 13, 1909. No. 3573 D.


A New Impulse Steam Turbine. A 1100 brake horse-power impulse turbine of the multiple-velocity type is illustrated and described. 1800 w. Engr, Lond—Sept. 24, 1909. No. 8370 A.

Willans Vacuum Turbine for Use with Exhaust Steam. Illustrated article dealing with the important points of an installation of this steam-turbine. 1800 w. Elec Engr, Lond—June 18, 1909. No. 6627 A.


The Steam Turbine for Use with Mixed Loads (Die Dampfturbine in Betrieben mit gemischtem Energiebedarf). A. Dahme. Illustrates and discusses the use of low-pressure turbines in plants where steam is used for a variety of purposes. 2200 w. Zeitschr f d Gesamte Turbinenwesen—Feb. 10, 1909. No. 3378 D.

See also Condensers, and Entropy, under STEAM ENGINEERING; Stuffing Boxes.
Turbine Speed

under MACHINE ELEMENTS AND DESIGN; Turbo-Generators, under ELECTRICAL ENGINEERING, DYNAMOS AND MOTORS; Steam Turbines, under MARINE AND NAVAL ENGINEERING; and Hoisting Engines, under MINING AND METALLURGY, MINING.

Turbine Speed.

See Gears, under MACHINE ELEMENTS AND DESIGN.

Turbine Tests.


Tests of a 150-Kilowatt Steam Turbine (Versuche an einer Rateau-Dampfturbine von 150 Kw.). Anton Gramberg. Describes the test and gives the results in curves. IIs. 3500 w. Zeitschr d Ver Deutscher Ing.—Feb. 13, 1909. No. 3562 D.


Test of a 4000 k.w. A.E.G. Curtis Turbogenerator in the Rummelsburg Station, Berlin (Untersuchung eines 400 Kw-A.E.G.-Turbogenerators in der Zentrale Rummelsburg der Berliner Elektrizitätswerke, Berlin). Describes the test and gives the results. IIs. 2000 w. Zeitschr f d Gesamte Turbinenwesen—May 19, 1909. No. 5779 D.

See also Power-Plant Testing, under POWER AND TRANSMISSION.

Turning Engines.

See Engine Designs, under STEAM ENGINEERING.

Valve Gears.


Reversing Valve Gears in General Use. Simpson Rice. An illustrated review of the types which have stood the test of continuous or intermittent operation, and a study of their characteristics. 4500 w. Power—May 11, 1909. No. 4534.

Gruenewald's Apparatus for Reversible Compound Engines. An invention designed to shorten the starting and stopping of reversible compound engine. IIs. 400 w. Ir & Coal Trds Rev—May 28, 1909. No. 5412 A.

Valves.


The Use and Abuse of Globe Valves. W. H. Wakeman. Illustrates and describes the principal features of the different types. 2500 w. Power—Jan. 5, 1909. (Special No.) No. 1479 D.


A New Type of Steam Regulator Valve. Illustrated description of the Servo steam regulator valve. 1000 w. Engr, Lond.—Oct. 8, 1909. No. 8944 A.


Water Hammer.


Water Hammer. From the memorandum of the Chief Engineer to the Manchester Steam Users' Assn., explaining the danger and giving the solution of water hammer blows and the conditions that may cause explosions. 3000 w. Prac Engr—Jan. 13, 1909. Serial, 1st part. No. 2053 A.

See also Steam Pipes, under STEAM ENGINEERING.
TRANSPORTING AND CONVEYING

Aerial Tramways


Recent Progress in the Construction of Aerial Tramways (Recenti Progressi sulla Costruzione di Ferrovie Aeree). Describes a number of recent installations. Ills. Serial, 1st part. 2000 w. Ing Ferro—July 1, 1909. No. 7247 D.


Aerial Tramway for a Harz Lime Works. Illustrated description of an aerial tramway with a capacity of 75 tons per hour designed to withstand winter weather. 2000 w. Indus Engng—Oct. 15, 1909. No. 8576 B.

Electrical Suspension Railways in Foundries (Elektrische Hängebahnen in Giessereien). Otto S. Schmidt. Describes a number of recent installations. Ills. 2700 w. Stahl u Eisen—Sept. 8, 1909. No. 8652 D.

Automatic Feeders.


Auto Trucks.


Bucket Elevators.

Mechanical Elevator. T. A. Rickard. Illustrates and describes a machine devised for conditions in Alaska, in handling the gravel deposits by either the hydraulic or dredging methods. 1600 w. Min & Sci Pr—March 20, 1909. No. 3505.

Cableways.

Short-Distance Transportation. Frank C. Perkins. Illustrated description of a modern freight conveying system. 1000 w. Sci Am Sup—Nov. 21, 1908. No. 334.


The Employment of Suspension Railways in Ironworks. Illustrates and describes applications showing the adaptability of this system. 1500 w. Engr, Lond—Dec. 18, 1908. No. 1377 A.

A Travelling Cableway. An interesting cableway recently erected at Grays, in Essex, is illustrated and described. 600 w. Engr, Lond—Feb. 12, 1909. No. 2704 A.

The Transport and Dumping of Material. Illustrated description of recently built plants of the Bleichert ropeway system. 800 w. Col Guard—Aug. 27, 1909. No. 7649 A.

Cableways (Les Transports aériens sur Cables). P. Piéart. Describes the construction of various systems, uses of aerial tramways and notable examples. Ills. Serial, 1st part. 3500 w. All Indus—July 1909. No. 7224 D.

Cableway Chariots (Die Klemmapparate der Drahtseilbahnen). A. Pietrowski. A historical and critical review of various types. Ills. 3500 w. Stahl u Eisen—Nov. 18, 1908. No. 1144 D.

The Electric Aerial Mono-Rail Up the Wetterhorn. Illustrated detailed description of an aerial railway in Switzerland, operated on the "compensating" system, and taking passengers to a height of some 5250 feet above sea level. 1500 w. Sci Am—May 8, 1909. No. 4540.


The Wetterhorn Cableway at Grindelwald, Switzerland (Le Puniculaire du Wetterhorn a Grindelwald, Suisse). Illustrated description of a long span rope-
MECHANICAL ENGINEERING

Cableways

way up the side of the Wetterhorn. Plate. Génie Civil—Feb. 13, 1909. No. 3340 D.

The Wetterhorn Cable Way (Der Wetterhornauflzug I Sektion). Illustrated description of the first section of a steeply inclined cable hoist on the slope of this mountain in Switzerland. Serial, 1st part. 2500 w. Schweiz Bau—Dec. 12, 1908. No. 1955 B.


An Ore-transplanting Railway in the Pyrenees. A. Gradewitz. Describes a loading and terminal wire rope tramway connected by a local railway used to transport iron ore from Mt. Canigou to Amelie-les-Bains. Ills. 950 w. Eng & Min Jour—June 5, 1909. No. 5292.


See also Construction, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS.

Car Dumping.


See also Coal Handling, under TRANSPORTING AND CONVEYING.

Coal Handling


The Virginian Railway’s Coal Handling Plant. Illustrated description of the coal shipping terminal at Sewell’s Point, Va. 1200 w. Ir Age—July 22, 1909. No. 6601.

Coaling Station at Guanatamo, Cuba. W. P. Engelmann. Illustrated description of this modern high speed coaling station and its equipment. 1100 w. Ir Age—June 24, 1909. No. 5857.


Coal Shipping Arrangements at St. John’s Collieries, Normanton. Illustrated
description of arrangements for loading coal into boats at a colliery nearly two miles from a canal wharf. 2500 w. Ir & Coal Trds Rev—Jan. 29, 1909. No. 2372 A.


An Interesting German Coal Loading Installation. Illustrated description of a travelling crane installed in Emden harbor. 1200 w. Col Guard—Feb. 5, 1909. No. 2454 A.


Bulk Handling of Coal at the Anhalt Mines (Massenbeförderung von Kohle auf den Gruben der Anhaltischen Kohlenwerke). E. Ullmann. Illustrates and describes bins, cars, electric locomotives, etc. Ills. 3500 w. Zeitschr d Ver Deutscher Ing.—July 17, 1909. No. 7473 D.


Coal Handling in Docks (Grundzüge für die Kohlenverladung beim Schiffsumschlag). Herr Berkenkamp. Illustrated description of various methods and devices. Serial, 1st part. 3500 w. Glückauf—Dec. 12, 1908. No. 1953 D.

New Coal and Ore Loading Plant at Schweigern. Illustrates and describes an extensive plant. 1500 w. Ir & Coal Trds Rev—March 5, 1909. No. 3178 A.


Coal-Loading Plant for Japan. Illustrates and describes a novel plant for loading a ship with coal, at the rate of 500 tons per hour. 700 w. Col Guard—Dec. 18, 1908. No. 1367 A.


See also Mechanical Stokers, under STEAM ENGINEERING; Coal Pockets, under CIVIL ENGINEERING, CONSTRUCTION; Docks, under CIVIL ENGINEERING, WATERWAYS AND HARBORES; Steamships, under MARINE AND NAVAL ENGINEERING; and Mine Conveyors, under MINING AND METALLURGY, COAL AND COKE.

Conveyors.


The Belt Conveyor in Railway Building. C. Kemble Baldwin. Describes adaptation of belt conveyors to this class of service. 2500 w. R R Age Gaz—March 26, 1909. No. 3519.


Recent Developments in Material Handling Devices (Über einige Neuerungen im Massentransport). M. Buhrle. Describes
MECHANICAL ENGINEERING

Conveyors

TRANSPORTING AND CONVEYING

Cranes

recent European types of conveyors, bucket elevators, etc. Ills. Serial—1st part. 2500 w. Zeitschr d Oest Ing u Arch Ver—Oct. 23, 1908. No. 582 D.

Handling Crushed Rock on San Francisco Bay. F. K. Blue. Illustrated description of the belt conveyors and bucket elevators which convey the material to and from bins and load and discharge the hopper barges. 1500 w. Eng & Min Jour—Dec. 12, 1908. No. 965.


Transport of Filling-Up Material by the Harpener Bergbau-Gesellschaft, near Dartmund, Germany. Description of the conveying equipment. 1500 w. Min Jour—Aug. 29, 1909. No. 7642 A.

New Devices for the Handling of Materials in Horizontal and Slightly Inclined Planes (Neueere Hilfsmittel für den Massentransport in horizontaler und leicht geneigter Ebene). Hubert Hermanns. Describes a number of portable and stationary conveyors. Ills. 2500 w. Stahl u Eisen—Sept. 1, 1909. No. 8649 D.

See also Steamships, under MARINE AND NAVAL ENGINEERING; Ore Handling, under TRANSPORTING AND CONVEYING; and Weight, under MEASUREMENT.

Cranes.

Early Steam Cranes and Hoists. Fully illustrated history of the early development of fixed and locomotive steam cranes. Shows the more important types before 1870. 4000 w. Engr, Lond—May 28, 1909. No. 5267 A.

GIANT Cranes. Harold P. Hobart. Reviews the past and present types of these machines in the great seaports. 1500 w. Yale Sci M—April, 1909. No. 4374 C.

Comparison of Large Power Fixed and Floating Cranes. Illustrates and describes types of floating cranes, showing their usefulness, especially in shipbuilding, and their advantage in cost. 1200 w. Engr, Lond—April 9, 1909. No. 4042 A.

Calculation of Pillar Cranes. Charles A. Schranz. A study of the stresses in the boom and in the pillar and tie-bars, vertical tie-rods, foundation bolts, etc. 1500 w. Mach, N Y—Sept., 1909. No. 7499 C.

Temperley Transporters. An illustrated article dealing with the various designs and the conditions they had to meet. 5000 w. Engng—Jan. 8, 1909. Serial, 1st part. Plate. No. 1819 A.


Four-Motor Overhead Electric Traveling Crane. Illustrations, with brief description of a crane built in Liverpool. 400 w. Engng—Sept. 24, 1909. No. 8364 A.

Tower Cranes and Transporters. Illustrated description of electrically-driven cranes for a large shipbuilding firm in Holland. 700 w. Engr, Lond—April 23, 1909. No. 4471 A.

Electric Travelling Gantry Crane. Illustrations with brief description. 500 w. Engng—June 18, 1909. No. 6041 A.


Traveling Cranes for Building Concrete Lock Walls at Brownsville. Outlines the work in progress, especially describing the huge gantry cranes, running on a trackway supported on pile trestles, which has proved its efficiency. Ills. 2500 w. Eng Rec—Feb. 27, 1909. No. 2845.


75-Ton Steam Floating Crane for Montreal. Illustrated detailed description. 1000 w. Engng—Sept. 17, 1909. No. 8124 A.


See also Shop Appliances, under MACHINE WORKS AND FOUNDRIES; Coal Handling, under TRANSPORTING AND CONVEYING; and Floating Cranes, and Shipbuilding, under MARINE AND NAVAL ENGINEERING.

Crane Trolleys.

Derricks.


Dock Machinery.

Eleventh International Navigation Congress, St. Petersburg, 1908 (XIe Congrès international de Navigation tenu à Saint-Pétersbourg en 1908). Report of the discussion on dock machinery for ports handling inland traffic, particularly the progress of electrical control of dock and harbor machinery. 4800 w. Ann d Ponts et Chaussées—1909-IV. No. 7914 E + F.

See also Cableways, under TRANSPORTING AND CONVEYING.

Elevator Accidents.
The Hydraulic Lift Accident on the City and South London Railway. Board of Trade report of an inquiry into the circumstances of the accident on Aug. 2, at the Oval Station. 3000 w. Mech Engr—Sept. 24, 1909. No. 8333 A.

Elevators.

The Traction Elevators in the Singer Building, New York. Illustrated detailed description of the operating principle of the high-rise machines for this building which exceeds 609 ft. in height. 4000 w. Eng Rec—May 1, 1909. No. 4395.

The Safety Equipment of the Singer Building Elevators. Illustrates and describes the precautions taken for the protection of passengers from overspeed of travel and possibility of the car falling. 3000 w. Eng Rec—Sept. 11, 1909. No. 7674.


Electric Lift-Control Gear. Illustrated description of a form of lift control gear for direct-current working. 1600 w. Engng—Aug. 27, 1909. No. 7653 A.

Power Requirements of Hydraulic and Electric Elevators (Arbeitsverbrauch eines hydraulischen und eines elektrisch betriebenen Personenaufzuges.) Herr Mühl-
MECHANICAL ENGINEERING

Freight Handling


Grain Handling

The Mitchell Cantilever Grain-Elevator. Illustrated detailed description of an elevator designed for discharging grain from ships to barges. 1600 w. Engng—July 9, 1909. No. 6424 A.

Grain-Conveying Machinery at Avonmouth Dock. Illustrated description of a recent installation at the Royal Edward dock, Bristol. 1200 w. Engr, Lond—Sept. 24, 1909. No. 8371 A.

See also Grain Elevators, under CIVIL ENGINEERING, CONSTRUCTION.

Hoists.


Ice Handling.


Industrial Railways.

A Successful Investment in an Industrial Railway. John M. Bruce. Illustrated description of a plant in Newark, N. J., for handling gypsum from steamer to storage yard. 1500 w. Engng-Con—Nov. 25, 1908. No. 714.


Narrow-Gauge Railway for a Gas-Works. Illustrated detailed description of the recently completed line connecting Harrogate with the Northeastern Ry. Co.'s lines at Bilton. 1200 w. Engr, Lond—Nov. 20, 1908. No. 744 A.


Jacks.


Lifting Magnets.

The Industrial Use of the Lifting Magnet. W. Frank MClure. Information in regard to the uses to which these magnets are applied, new types, and their operation. Ills. 1500 w. Sci Am—Feb. 6, 1909. No. 2280.


Material Handling.

Modern Material-Handling Machinery for Industrial Plants. A. G. A. Schmidt. The present article illustrates and describes types of hoisting machinery. 6000 w. Ind Engng—April, 1909. Serial, 1st part. No. 4077 C.

See also Shops, under MACHINE WORKS AND FOUNDRIES.

Ore Handling.


Ore-Handling Machinery at the N. Y. P. & O. Dock at Cleveland, Ohio. Harry E. Scott. Illustrated detailed description of the plant near the foot of W. 25th St., the electrical unloaders, their operation, speed, etc. 4000 w. Jour Worcester Poly Inst—Jan., 1909. No. 1841 C.


MECHANICAL ENGINEERING

Ore Handling


Ore-Hoisting Appliances at the Wharf of the Tyce Copper Co., at Ladysmith, Vancouver Island, B. C. E. Jacobs. Illustrated description of the bunkers and conveyors. 800 w. Mines & Min—June, 1909. No. 5242 C.

Shipping Iron Ore at Aquilas, Spain. (Abridged.) Gustave Gillman. Illustrates and describes the arrangements for loading and storing. 2500 w. Inst of Civ Engrs—No. 3716. No. 3204 N.

Recent Ore-Handling Plants at Iron Works (Einige neuere Beförderungsanlagen auf Hochofenwerken). Describes aerial tramway and cableway installations. 3500 w. Stahl u Eisen—Dec. 2, 1908. No. 1940 D.

See also Coal Handling, under TRANSPORTING AND CONVEYING; Docks, under CIVIL ENGINEERING, WATERWAYS AND HARBORS; Steamships, under MARINE AND NAVAL ENGINEERING; and Ore Bins, and Ore Handling, under MINING AND METALLURGY, MINING.

Pulley Blocks.

See Erection, under CIVIL ENGINEERING, BRIDGES.

Rotary Conveyors.

A Novel Type of Rotary Conveyor. Illustrated description of a type of transporter devised by an English engineer, A. R. Grossmith, for carrying top soil from the excavation site to the dump. 1500 w. Sci Am—Aug. 7, 1909. No. 6959.

Transporter Bridges.

The Old Bizerte Transporter Bridge at the Brest Arsenal (Transport de l'Ancien Pont à Transbordeur de Bizerte dans l'Arsenal Maritime de Brest). G. Leinekugel Le Coq. Illustrated description. 3500 w. Génie Civil—Oct. 31, 1908. No. 536 D.

Transporters.


The Barry Transporter. Illustrated description of the present form of this transporter, calling attention to improvements introduced. 2500 w. Engng—March 5, 1909. No. 3166 A.

A Novel Type of Transporter. Illustrated description of a conveyor of new design. 1000 w. Engr, Lond—June 18, 1909. No. 6051 A.

See also Cleaning, under MACHINE WORKS AND FOUNDRIES.

Traveling Bridges.

A Large Material Handling Plant. Brief illustrated description of the use of traveling bridges in building a river lock. 1000 w. Ir Age—Nov. 19, 1908. No. 336.

MISCELLANY

Aeronautics.


Mechanical Flight. Herbert Chatley. Indicates points in which improvement is desired, reviewing prevailing types. Ills. 4500 w. Soc of Engrs—Dec. 7, 1908. No. 1339 N.


Aviation (Aviation). Gérard Lavergne. The first article gives a review of early
Aeronautics

Attempts to build flying machines. Serial. 1st part. 1500 w. Rev Indus—April 17, 1909. No. 4820 D.


Aeronautics


The Role of Viscosity in Air Support of a Moving Aéroplane. Frank W. Very. Gives theories and experiments of various investigators, especially considering Prof. Langley's views which the writer believes to be wrong. 7000 w. Tech Qt —Dec., 1908. No. 3441 E.


Solution of Flight Problems by Graphical Methods. M. P. Logan. Deals with the problems of horizontal, and of rising and falling flight, developing a method be-
Aeronautics

MISCELLANY

Aerials and to be of value to designers and engineers. 2000 w. Engr, Lond.—July 16, 1909. No. 6688 A.


Birds and Aeroplanes (Oiseaux et Aeroplanes). Ch. Weyher. An argument to show that the most successful type of aeroplane will imitate as closely as possible the flight of birds. Ills. 4000 w. Rev Gen des Sci—Dec. 30, 1908. No. 1917 D.


Aeronautics

Ills. 4000 w. Zeitschr d Oest Ing u Arch Ver—Dec. 18, 1908. No. 1980 D.

Some Anchored Tests of Aerial Propellers. Walter A. Scoble. Gives results of some experiments made at the Blythwood Laboratory to determine the effect of varying the different elements and methods of construction. 1200 w. Engng—Dec. 25, 1908. No. 1535 A.


The Influence of Combustion Motors on Transport (Influenza dei Motori ad Essenza nell’Industria dei Trasporti). Giuseppe Colombo. Refers principally to their use in airships and aeroplanes. 5500 w. Industria—Nov. 1, 1908. No. 1131 D.


Aeronautics

Aeroplane-Type Flying Machines. Harry Wilken Perry. Illustrated review of what has been accomplished. 3000 w. Mach, N Y—Dec., 1908. No. 762 C.


The United States Signal Corps Aeroplane. Illustrated description of the Wright Machine that met the specifications by carrying two men for an hour's flight and making a speed of 42½ miles per hour. 3000 w. Am Mach—Vol. 32, No. 32. No. 7010.


The Blériot Monoplane That Flew the Channel. Illustrated description. 2500 w. Am Mach—Vol. 32, No. 34. No. 7349.

The Cross-Channel Flight. An illustrated account of the feat accomplished by M. Blériot, with description of the aeroplane used. 1000 w. Engr, Lond—July 30, 1909. No. 6986 A.

The Channel Flight. Editorial on the feat of M. Blériot in crossing the English Channel in an aeroplane. 1500 w. Engng—July 30, 1909. No. 6986 A.

The Crossing of the English Channel by M. Blériot (La Traversée de la Manche en Aeroplane par M. Blériot). From the Monoplan No. XI, 25 Juillet 1909) Describes the aeroplane and gives details of the flight. Ills. 5500 w. Génie Civil—July 31, 1909. No. 7234 D.


Report on the Award of the Osiris Prize in 1909 (Rapport sur le Prix Osiris à Décerner en 1909). Emile Picard. Reviews the reasons for the choice this year of aviation and the basis of the joint award of this prize of the Institute of France to Voisin et Blériot. 4000 w. Rev Gen des Sciences—July 13, 1909. No. 7218 D.

How to Build a Chanute-Type Glider: Illustrated directions. 1500 w. Sci Am—April 24, 1909. No. 4111.


The Ravaud Aero-Hydroplane. Illustrated description of a new type of aeroplane adapted to rise from water. 600 w. Sci Am Sup—May 1, 1909. No. 4333.


The British Army Aeroplane. An illustrated article giving some impressions.
MECHANICAL ENGINEERING

Aeronautics


Capt. Cody's British Army Aeroplane. Illustrated description of the machine which made a successful flight of over one hour, traveling 47 miles. 1200 w. Sci Am—Sept. 18, 1909. No. 7802.

On Dirigible Balloons. Discusses progress shown in recent types, some of the risks, and a few disasters. 3500 w. Engng—March 5, 1909. No. 3165 A.


Notes on the Existing Types of Dirigible Balloons (Beschouwingen over bestaande Typen van besturbare Lucht schepen), T. F. J. Post van der Steur. A review of progress in airship construction and of the fundamental theories. Ills. 12500 w. De Ingenieur—March 6, 1909. No. 4299 D.


The Dirigible Balloon with Gyroscope Control. Russell Thayer. Briefly reviews the progress in aerial navigation and explains the author's application of the gyroscope to air navigation. Ills. 7000 w. Jour Fr Inst—July, 1909. No. 6353 D.


Progress in Airship Construction (Fortschritte im Luftschiffbau). Dr. Wagner. Discusses principles of design and describes several types. Ills. 5500 w. Zeitschr d Ver Deutscher Ing—July 24, 1909. No. 7478 D.


Flight of the "Zeppelin I." An account of recent performances of this German airship. 1200 w. Sci Am Sup—April 17, 1909. No. 3947.

The Record Flight of "Zeppelin II." Illustrated account of its accident, describ-
Aeronautics


Aeronautical Motors in Paris. Illustrations, with descriptions, of motors shown at the exhibition. 1800 w. Engnr, Lond—Oct. 1, 1909. No. 8496 A.

See also Exhibitions under Automobiles; Gasoline Engines, under Combustion Motors; and Propellers, under Marine and Naval Engineering.

Agricultural Machinery.


Air Resistance.


Brick Presses.


Calculating Machines.


Carbonic Acid


Clocks

Clocks.


Efficiency.


Empirical Formulae.


English Practice.


Engraving Blocks.


Flour Milling Machinery.

See Reinforced Concrete, under CIVIL ENGINEERING, CONSTRUCTION.

Guns.

Field Guns for Destroying Dirigibles. Illustrates and describes recent German artillery and shells specially designed for bringing down military airships. 2500 w. Sci Am Sup—May 29, 1909. No. 5028.

The Design of Weapons for Attacking Airships. Considers the requirements of such weapons, principally discussing attacks on dirigible balloons. 2500 w. Engr, Lond—May 14, 1909. No. 4970 A.

Recent Developments in Quick-Firing Field Guns. Illustrated descriptions of French, German and English recoil gears, and their advantages. 4000 w. Engr, Lond—June 25, 1909. No. 6288 C A.


The Life and Power of Heavy Ordnance. Editorial review of recent articles dealing with this subject, and a comparison of British and German guns. 2500 w. Engng—July 23, 1909. No. 6852 A.

Gyroscopes.

Recent Development in Gyroscope Design. Describes a new form for engineering use invented by Prof. Narciss Ach. 3000 w. Sci Am Sup—Nov. 21, 1908. No. 335.

Gyrostats.


Kneading Machines.


Laundry Machinery.

Steel-Bed Ironing-Machine. Illustrated description of these machines. 1100 w. Engng—June 18, 1909. No. 6046 A.

Leibnitz.


Mathematics.


Minting Machinery.

MECHANICAL ENGINEERING

Mixing Machines.

Mixing Machines.


Oxygen.


Phonographs.

The Production of Sound by Machinery. S. I. Oeisterreicher. Discussion and description of mechanical devices designed to talk and to reproduce spoken words and musical notes. 3500 w. Am Mach—Vol. 32. No. 23. No. 5351.

Progress.

Some Recent Advances in Mechanical Engineering. Carl C. Thomas. Consider development in steam turbines, gas engines, progress in cutting metals, and various other developments. Ills. 4000 w. Wis Engr—Feb., 1909. No. 4314 D.

Review of 1908.

Mechanical Engineering. Reviews improvements in marine engines, rolling stock, automatic couplers, internal combustion engines, etc. 5500 w. Engr, Lond—Jan. 1, 1909. No. 1718 A.


Safety Devices.


Safety Appliances on Cotton-Scutchers and Lap-Machines. Explains the dangers to workmen and illustrates and describes appliances for their protection. 2500 w. Engng—Dec. 18, 1908. No. 1369 A.


Scientific Follies.


Sugar Machinery.


A Large Sugar-Cane Mill. Illustrated description of a new eleven-roller sugar-cane mill, said to be the largest and most powerful yet constructed. 1000 w. Engr, Lond—Feb. 19, 1909. No. 2902 A.

Textile Machinery.


Textile Mills.


Removal of Dust from Card-Rooms of Cotton Mills. Illustrated description of the “Hall and Key” method, designed to remove the stripping dust as rapidly as it is produced. Also the design of Herbert Smethurst & Co. 1200 w. Engr, Lond—Jan. 29, 1909. No. 2371 A.

The Cotton Industry in India. John Wallace. An illustrated account of the conditions in India and the development of this industry, and the application of modern methods. 4500 w. Cassier’s Mag—April, 1909. No. 3635 B.

Type-Setting Machines.

Type-casting and Composing Machinery. L. A. Legros. Deals with typographic surfaces which are produced directly by movable type or indirectly by means of movable matrices. Ills. 3250 w. Inst of Mech Engrs—Dec. 18, 1908. No. 1508 N.

Weighing Machines

Automatic Weighing Machine. Illustrated description of a battery of Stacey
A Weighing Machine with Automatic Slide (Le Système de Bascule à Curseur automatique). Leon Masson. Detailed description of a scale in which the slide is automatically operated by clock work, which also operates indicating and recording devices. Ills. 2500 w. Bul Soc d'Encour—June, 1909. No. 7216 G.

Women Inventors.

MINING AND METALLURGY

COAL AND COKE

MINOR MINERALS

329

COPPER

MINING

344

GOLD AND SILVER

ORE DRESSING AND CONCENTRATION

351

IRON AND STEEL

402

LEAD AND ZINC

MISCELLANY

378

407

Accidents

COAL AND COKE.

Analysis

Alaska.

Fatal Accidents in Coal Mines of America. Frederick L. Hoffman. Statistics showing that over 3000 persons were killed in 1907. 3500 w. Eng. & Min Jour—Dec. 19, 1908. No. 1057.


The Use of Oxygen in Mining Accidents. Dr. James Robertson. Shows the value of oxygen in pit rescues. 1700 w. Col Guard—April 30, 1909. No. 4614 A.

Electrical Accidents in Mines. Reviews the casualties from this source in British mines, during the period that the present government regulations have been in force. 1800 w. Col Guard—Sept. 24, 1909. No. 8356 A.

Alabama.

MINING AND METALLURGY

Australia

Coal and Coke

Coal Cutting

Jour W Soc of Engrs—April, 1909. No. 4786 D.

See also Locomotive Fuel, under RAILWAY ENGINEERING, MOTIVE POWER AND EQUIPMENT.

Canada.


See also same title, under MISCELLANY.

Chile.

The Coalfields and Collieries of Chile. Archibald Russell. Outlines the coal deposits on the Pacific coast and gives information in regard to the quality of coal and the mining industry in Chile. 2500 w. Min Jour—Aug. 21, 1909. No. 7430 A.

China.


Coal Cutting.

A Comparison of Coal Cutting Machines. Sydney F. Walker. Showing economy of machine mining and discussing compressed air as compared with electric power. 6000 w. Eng & Min Jour—May 22, 1909. No. 4921.


Mining Coal with Machines in England. George R. Dixon. Gives detailed costs, showing that the economy is due to the increase in the value of the coal produced, rather than reduction in working costs. 3000 w. Eng & Min Jour—April 17, 1909. No. 4007.


MINING AND METALLURGY

Coal Cutting


Coke-Oven Gas

Comparison Between the Value of Surplus Gas from Regenerator By-Product Coke Ovens, with Special Reference to the Evence Copper New By-Product Ovens. Mansfeld H. Mills. Paper read before the Institution of Mining Engineers. 2500 w. Ir & Coal Trds Rev—May 28, 1909. No. 5408 A.


See also Gas Power Plants, under MECHANICAL ENGINEERING, COMBUSTION MOTORS.

Coke Ovens

Genesis and Development of the Coking Oven. W. Galloway. Reviews the development, showing that the main features have not changed since 1860. Ills. 3000 w. Eng & Min Jour—July 3, 1909. No. 6165.


Progress in By-Product Coke-Oven Construction at Indianapolis. Illustrated detailed description of plant to supply both gas and fuel. 2500 w. Pro Age—March 15, 1909. No. 3116.


The Koppers By-Product Coke Oven. Illustrated detailed description of two plants recently erected in England, explaining the special features of this system. 2000 w. Col Guard—July 2, 1909. No. 6300 A.

Huessener Waste Heat Coke Oven. Illustrated description of a typical installation of these coke ovens and by-product plants, stating their advantages. 2500 w. Col Guard—July 16, 1909. No. 6681 A.

Levellers for Coke Ovens. A. Thau, in Glückauf. Illustrates and describes types of mechanical levellers. 1000 w. Col Guard—Nov. 6, 1908. No. 317 A.

Coke-Squeezing Machines


Coking

Washed Coal for Coke Making. Walter J. May. Brief consideration of the possibility of making good coke from coal
MINING AND METALLURGY

Coking By-Products

wastes. 1200 w. Prac Engr—March 12, 1909. No. 3409 A.

See also Washing, under Coal and Coke.

Coking By-Products.

Koppers Ammonia Sulphate Plant. Describes the main features of this new process, recently installed at the new coke plant at Gary, Ind. Ills. 4500 w. Pro Age—July 1, 1909. No. 6057.


The Production of Benzol in the Coking of Bituminous Coal (Steinkohlenverkokung und Benzolgewinnung). Dr. Fritz Höigginsberger. Discusses benzol as an automobile fuel and the method of its production in by-product coking. Ills. 5000 w. Zeitschr d Mit Motorwagen-Ver—Nov. 30, 1908. No. 1176 D.

Coking Plants.


Gas and Electric Plants at Collieries. Mr. Holt. Paper read before the Nat. Assn. of Col. Mgrs. Deals principally with the plants at the Powell Duffryn Colliery. 3500 w. Ir & Coal Trds Rev—March 5, 1909. No. 3181 A.


See also Pyrometry, and Washing, under Coal and Coke.

Coking Properties.

A Study of the Coking Properties of Coals (Etude sur les Charbons et leur Pouvoir cokéifiant). O. Boudouard. An important investigation of the influence of composition, structure, etc. 6500 w. Rev de Mécan—April, 1909. No. 4819 E + F.

Colorado.

Routt County, Colorado, Coals. R. L. Herrick. A compilation from various sources concerning the geology, deposits, qualities, etc. Ills. 5000 w. Mines & Min—Dec., 1908. No. 719 C.


Conservation.


Conservation in the Mining Industry. Frank M. Osborne. Especially considers the coal fields and the need of economic methods. 1500 w. Pro Am Min Cong—1908. No. 4122 N.


See also Natural Resources, under INDUSTRIAL ECONOMY.

Dust Extractors.

Appliances for Dealing With Coal Dust at the Pit Mouth. Illustrates and describes devices in use at different collieries for preventing the spread of coal dust or removing it. 3000 w. Ir & Coal Trds Rev—Jan. 8, 1900. No. 1829 A.

Economics.

Financial Burdens on Collieries. An explanation of the conditions of working collieries in Great Britain. 2200 w. Engr, Lond—May 21, 1909. No. 5198 A.

Electric Power.

Electricity in Mines. George R. Wood. Outlines the ordinary mine development and some of the standard electrical equip-
MINING AND METALLURGY

Electric Power

COAL AND COKE

Electric Power

ment, describing typical coal-mining plants. 4500 w. Pro Am Inst of Elec Engrs—Aug., 1909. No. 7058 F.

Safe Use of Electricity in Coal Mining. George R. Wood. Read before the Coal Min. Inst. of America. Suggestions as to proper voltage, insulation, etc. 3500 w. Eng & Min Jour—July 3, 1909. No. 6168.

Safe Use of Electricity in Mines. George R. Wood. Read before the Coal Min. Inst. of Am. Considers electric coal cutters and dust; shocks from electric wires, and electrolysis. 4000 w. Mines & Min—Aug., 1909. No. 6885 C.


Notes on Safety of Working Electrical Plants in Coal Mines. Sidney A. Simon. Read before the Glasgow Sec. of the Inst. of Elec. Engrs. Reviews experience since the new rules of the Home Office have been in force, and gives an account of tests made in Germany and the results. 5000 w. Elec Engr, Lond—March 26, 1909. Serial, 1st part. No. 3777 A.

Electricity at a Colliery. Illustrates and describes a plant recently installed at Shamrock Colliery. 1800 w. Engr, Lond—May 14, 1909. No. 4972 A.

The Mines Eight Hours Act and Its Stimulus to Electrical Underground Haulage. Discusses change of equipment, and methods in which mechanical devices will replace labor. 2500 w. Ir. & Coal Trds Rev—May 28, 1909. No. 5490 A.

Mining Motors and Switchgear. William Maurice. A lecture at the University College, Nottingham, on the available apparatus for electrical applications in mines. Ills. 6500 w. Ir & Coal Trds Rev—April 9, 1909. No. 4043 A.


Some Applications of Electrical Power in Belgium (Quelques Applications de l'Electrotechnique en Belgique). Alfred Lambotte. This sixth and last article of the series on electric power in mining describes the electric installations of the Ressaix, Leval, Péronnes, Sainte-Aldegonde et Genck Collieries Company. Ills. Tables. 1500 w. Soc Belge d'Electr—Dec., 1908. No. 1901 E.

Electric Installations of the Laura and Vereeniging Collieries (Installations électriques des Charbonnages réunis Laura et Vereeniging), Albert Genart. Illustrated description of the plants of this company in Holland. 6800 w. All Indus—Feb., 1909. No. 3325 D.

See also Accidents, and Coking Plants, under COAL AND COKE; and Central Stations, under ELECTRICAL ENGINEERING, GENERATING STATIONS.
MINING AND METALLURGY

England

Our Steam Coal and Its Uses. Sir Lees Knowles. From presidential address before the Manchester Geol. & Min. Soc. 4000 w. Col Guard—Dec. 18, 1908. No. 1368 A.


Coal Mines Inspection in 1908. Digest of the reports of H. M. inspectors of mines. 5500 w. Col Guard—Aug. 6, 1909 (Sup.). No. 7099 A.

See also Economics, under COAL AND COKE.

Europe

Brief Notes on European Coal Mines. Floyd W. Parsons. Considers some reasons why the coal industry abroad is on a more profitable basis. Ills. 1600 w. Eng & Min Jour—Sept. 11, 1909. No. 7679.

Explosions


Mine Accidents. Sim. Reynolds. Discusses some of the little things that cause them. 9500 w. Mines & Min—April, 1909. No. 3673 C.


Mine Explosions as Related to Earthquakes. W. A. Spalding. A discussion favoring the theory that the danger from explosions in deep mines is augmented during periods of seismic disturbance. 2500 w. Eng & Min Jour—Feb. 20, 1909. No. 2550.

Mine Explosions as Related to Earthquakes. W. A. Spalding. Shows that an earthquake may cause an outflow of gas in a distant mine. 2500 w. Eng & Min Jour—Sept. 18, 1909. No. 7825.


Effect of Humidity on Mine Explosions. Discussion of the paper by Carl Scholz. 3000 w. Bul Am Inst of Min Engrs—June, 1904. No. 5925 F.


Explosives

10000 w. Ir & Coal Trds Rev—Oct. 8, 1909. No. 8959 A.


Dust-Explosions in Coal-Mines. Frank- lin Bache. Thinks the aim should be to get rid of the dust, and discusses methods. 2500 w. Bul Am Inst of Min Engrs—Aug., 1909. No. 7127 F.

Facts Concerning the Marianna Explosion. Floyd W. Parsons. An illustrated discussion of the cause of the accident at this model mine in Pennsylvania. The fan indicator diagram shows that ventilation stopped 25 minutes before the explosion. Also editorial. 4500 w. Eng & Min Jour—Dec. 12, 1908. No. 697.

The Marianna Explosion. Plan and description of this mine in Western Pennsylvania and the accident, with reports of inspectors, etc. 8500 w. Mines & Min—Jan., 1909. No. 1414 C.


Wehrum (Pa.) Mine Explosion. An account of the conditions existing at the mine at the time of the explosion, and the Coroner’s verdict. 4000 w. Mines & Min—Sept., 1909. No. 7493 C.


Testing Station of the Central Committee of French Colliery Owners at Lievin (La Station d’Essais du Comité central des Houillères de France à Lievin). Illustrated description of a station built for the purpose of investigating dust explosions. Ills. 7500 w. Génie Civil—April 10, 1909. No. 4837 D.


See also Mine Dust, under COAL AND COKE.

Explosives.


MINING AND METALLURGY

Formation

COAL AND COKE

Mexico

Jour W Soc of Engrs—June, 1909. No. 5877 D.

Studies of Illinois Coals. Gives results of investigations made by experts, with discussions of certain phases, with summary and conclusions. 22500 w. Bul Am Inst of Min Engrs—Nov., 1908. No. 688 E.


India.

Longwall Working at the Seetarammooda, India. Willis Howarth. Explains the physical conditions at Nursamooda, the human conditions, and the mechanical conditions. 2500 w. Ir & Coal Trds Rev—April 30, 1909. No. 4632 A.

Kentucky.


Lignite.


See also Peat, and Texas, under COAL AND COKE.

Mexico.

The Coal Industry in Mexico. Edwia1 Ludlow. Read at session of the Int. Geol. Cong. Important coalfields have been discovered and are being so developed that Mexico will soon be independent of all foreign fuel supplies. Map. 3500 w. Eng & Min Jour—Oct. 2, 1909. No. 8272.


See also Coking Plants, under COAL AND COKE.

Formation

Pressure in the Formation and Alteration of Coal. D. B. Dowling. Gives results of recent experiments on peat, showing that there is some relation between the pressure under which the coal was formed and the resultant compound. 1400 w. Can Min Jour—Feb. 15, 1909. No. 2550.

The Origin of Anthracite Coal. Editorial review of theories advanced, and general agreement reached, with a reference to the recent investigations of A. Strahan and W. Pollard of the coals of South Wales. 1500 w. Engng—April 23, 1909. No. 4454 A.


Germany.

The Geological Structure between Menden and Witten (Beiträge zur Kenntnis des Schichtenaufbaus zwischen Menden und Witten). Herr Kokuk. Illustrated description of the formation in this coal district. 3300 w. Gluckauf—Nov. 21, 1908. No. 1152 D.

A Model Coal Mine in Westphalia. William S. Hall. Describes the Zollern II. Colliery, where 15 seams varying in thickness from 1½ to 10 feet are worked. Each bed is worked by retreating and the product is carefully washed. Ills. 3400 w. Eng & Min Jour—June 5, 1909. No. 5999.

Great Britain.


Wages, Profits, and Royalties in the Coal Trade. An estimate of the average wages, profits, and royalties per ton of coal raised in Great Britain. 1500 w. Engr, Lond—Oct. 1, 1909. No. 8495 A.

Handling.

See Coal Handling, under MECHANICAL ENGINEERING, TRANSPORTING AND CONVEYING.

Illinois.

The Illinois Coal Field. A. Bement. A report of the coal resources of the state, the characteristics of the deposits, quality, etc. Maps. Discussion. 22500 w.
MINING AND METALLURGY

Mine Conveyors

COAL AND COKE

Mine Fires


Coal Dust Experiments at the Experimental Gallery of the Rossitz Coalfield. Dr. Czapinski and J. Jicinsky. Trans. from Zeit. für Berg- und Hüttenwesen. Describes experiments to determine the conditions under which coal dust is liable to explode. 800 w. Ir & Coal Trds Rev—Sept. 10, 1909. Serial. 1st part. No. 7871 A.


Mine Fires


Sealing Off Summit Hill Mine Fire. H. H. Stoek. Illustrates and describes the sinking of a line of shafts removing coal

Mine Conveyors.

A New Underground Conveyor. Illustrates and describes the Bothwell conveyor, which has been in use several months with satisfactory results. It is patented by Richard McPhee. 2500 w. Col Guard—Sept. 24, 1909. No. 8357 A.

Mine Dust.


Spraying Coal Dust as a Colliery Safeguard. D. Harrington. Describes a sprinkling system, giving detailed costs of installation and operating as carried on in the mines of Utah. 3500 w. Eng & Min Jour—Jan. 23, 1909. No. 2030.

The Coal-Dust Problem. John Verner. Address before the Fuel Conference, at Urbana, Ill. Discusses the mechanical influence of air currents in furnishing conditions favorable to a dust explosion. 5000 w. Mines & Min—May, 1909. No. 4480 C.


British Coal Dust Experiments. Illustrated description of recent experiments with coal dust and stone dust at the Altofts Experimental Gallery. 2500 w. Ir & Coal Trds Rev—Oct. 1, 1909. No. 8956 A.

The British Coal Dust Experiments. An illustrated account of work at the Experiments Station at Altofts since August, 1908, in connection with the problem of coal-dust explosions. Plate. 4000 w. Col Guard—July 30, 1909. No. 6982 A.

The Coal Dust Question in Great Britain. Henry Hall. Shows how legislature has reduced the number of explosions. 7500 w. Eng & Min Jour—May 29, 1909. No. 5161.
and rock, and filling space with clay to form a barrier. 3500 w. Mines & Min—Aug, 1909. No. 6880 C.


Mine Flushing.

The Flushing Problem in the Anthracite Region. Explains the situation in Pennsylvania, and the danger to surface property, describing the attempt to fill the spaces where coal has been removed. 1500 w. Eng & Min Jour—Sept. 18, 1909. No. 7826.

Mine Gas.


See also Safety Lamps, under COAL AND COKE.

Mine Sampling.


Mine Surveying.

See Surveying, under MINING.

Mine Ventilation.


The Ventilation of Mines. Abstract of a lecture by W. H. Hepplewhite. Considers the splitting of the air current, its vagaries, circulation, etc. 2500 w. Ir & Coal Trds Rev—Dec. 11, 1908. No. 1226 A.


Mining.

Problems of the Coal Mining Industry. Dr. J. A. Holmes. Brief remarks on a few problems such as accidents, smoke, waste, etc. 1000 w. Pro Am Min Cong—1908. No. 4125 N.


Mining Methods for Maximum Recovery of Coal. H. V. Hesse. Considers the important factors that cause loss, discussing improved methods of operation, giving a case where early methods secured about 50% and present methods 95%. Ills. 4000 w. Eng & Min Jour—Feb. 6, 1909. No. 2318.


MINING AND METALLURGY

Coal and Coke

Recovering Abandoned Coal Pillars. W. L. Hamilton. Early operators left 60 per cent of coal unmined, and the methods being made to extract this coal are described. 1500 w. Eng & Min Jour—July 3, 1909. No. 6169.

Coal Mining Methods at Gary, West Virginia. John S. Walker. Illustrated description of methods used in mines of the U. S. Steel Corporation, which claim to be the safest in the world. 1500 w. Eng & Min Jour—July 3, 1909. No. 6169.


Practice of Coal Mining in Great Britain. Floyd W. Parsons. Describes methods in common use and shows the advantages of the longwall system. Ills. 3000 w. Eng & Min Jour—Oct. 23, 1909. No. 8723.

I. Notes on Working Thick Coal. II. Brickwork Dams in Thick Coal. Two short papers by Lawrence Holland, with short discussion. 4000 w. Col Guard—Feb. 19, 1909. No. 2801 A.


Advanced Methods of Mining Coal in Silesia. Lucius W. Mayer. Illustrates and describes a system in which filling is flushed into the workings and total extraction accomplished. 6000 w. Eng & Min Jour—Nov. 7, 1908. No. 145.


Boring as a Means of Security Against Irruptions of Gas and Water (Das Vorbohren als Sicherungsmittel gegen Wasser- und Gasdurchbrüche). Herr Stegemann. Describes the practice of exploratory boring followed in some German mines. Ills. 2800 w. Glückauf—May 1, 1909. No. 5756 D.

The Nine Hours Day in Austria. Translation of a report by a Commission appointed by the Belgian Government, in regard to the effect on production, earnings, etc. 2500 w. Col Guard—April 23, 1909. No. 4457 A.

Progress and Improvements in Mining in Austria (Fortschritte und Verbesserungen beim Bergbaubetrieb in Oesterreich). The first part of the serial discusses improvements in hoisting methods and appliances. Ills. Serial, 1st part. 1200 w. Oest Zeit f Berg u Hüttenwes—Feb. 6, 1909. No. 3366 D.

Some Experiments and Improvements in Mining in Austria (Einige Versuche und Verbesserungen beim Bergbau in Oesterreich). Discusses recent practice in coal mining. Ills. Serial, 1st part. 2500 w. Oest Zeitschr f Berg u Hüttenwes—Nov. 21, 1908. No. 1149 D.


See also Coal Cutting, under Coal and Coke; Haulage, Pumping, and Timber Drawing, under Mining; and Eight-Hour Day, under Industrial Economy.
MINING AND METALLURGY

MINING COSTS

Mining Costs.


Mining Finance.

Coal Mining as an Investment. H. M. Chance. Discusses the elements tending to stability and safety, the causes of failures, etc. 2500 w. Eng & Min Jour—Aug. 14, 1909. No. 7070.

Mining Plants.


Montana.

The Great Falls Coalfield in Montana. A. T. Shurick. Describes the deposit, reviewing past and present operations, methods, etc. Iills. 2500 w. Eng & Min Jour—March 20, 1909. No. 3261.


New Guinea.


New Mexico.


New Zealand.


COAL AND COKE


Description of a New Zealand Coal Mine. C. J. Holroyde. A general illustrated description of the plant of the Westport Stockton Coal Co.'s mine. 2500 w. Aust Min Stand—Aug. 18, 1909. No. 8141 B.

See also same title, under GOLD AND SILVER.

Oklahoma.


Peat.


The Gasification of Peat. Charles A. Davis. Deals with the utilization of low-grade fuels, showing that it is possible to obtain gas for power and heating, high-grade coke, and sufficient by-products to pay the cost of operation. 6000 w. Cassier's Mag—Aug., 1909. No. 7036 B.


MINING AND METALLURGY

Peat

Ammonia Sulphate from Peat. Describes the Woltereck Process employed at Carnlough, Ireland, where a mixture of air and water vapor is passed over peat maintained at low heat in special furnaces to evaporate the nitrogenous contents which are then treated to yield ammonium sulphate. Ills. 2000 w. Sci Am Sup.—June 5, 1909. No. 5312.

See also Fuels, under MECHANICAL ENGINEERING, STEAM ENGINEERING.

Pennsylvania.
The Jenner Mine of the Somerset Coal Co. John L. Wagner. Illustrated description of the ring electric coal puncher machines for cutting coal, methods of haulage, etc. 1400 w. Mines & Min—Feb., 1909. No. 2232 C.

Peru.


Philippines.


Philippine Coals as Fuel. Alvin J. Cox. Reports an investigation made to determine the steam-making value of the coals of the Philippine Islands, as compared with foreign coals offered on the market. Also a comparative study of the individual coals. Ills. 12600 w. Philippine Jour of Sci—Nov., 1908. No. 2709 N.

The Coal Resources of the Philippine Islands. Warren D. Smith. Considers the importance of the coal supply, the geology, distribution, coal fields, character of the coals. Map. 4000 w. Ec-Geol—April, 1909. No. 4671 D.

See also Calorimetry, under MECHANICAL ENGINEERING, MEASUREMENT.

COAL AND COKE

Production.
Coal Mining in the United States in 1908. Reviews the mining conditions in important anthracite and bituminous centers. 11500 w. Eng & Min Jour—Jan. 9, 1909. No. 1583.


The World's Coal Production and Consumption. Information from the annual statement of the Board of Trade. 3000 w. Col Guard—Feb. 26, 1909. No. 3062 A.

Prospecting.

Rescue Appliances.


See also Mine Fires, under COAL AND COKE.
MINING AND METALLURGY

Rescue Stations


Reviews of 1908.

See Production, under COAL AND COKE.

Rhode Island.

Rhode Island Coal for New England? Describes deposits of hard, graphic coal that is practically incombustible in its natural state, but is said to burn readily after chemical treatment. Ills. 2500 w. Power—Oct. 5, 1909. No. 8321.

Royal Commission Report.


Russia.


Safety Lamps.


The Various Methods of Lighting Safety Lamps (Ueber die verschiedenen Arten der Sicherheitslampen—Zündung). Herr Beyling. Describes the methods and devices used and discusses their utility and safety. 4500 w. Glückauf—Nov. 28, 1908. No. 1155 D.


Seismograph Station.


Shrinkage.


South Africa.


Spontaneous Combustion.

MINING AND METALLURGY

Storage


See also Coal Handling, under MECHANICAL ENGINEERING, TRANSPORTING AND CONVEYING.

Testing Stations

United States Testing Station at Pittsburgh. Description, with plan and section of the gas and dust gallery. IIs. 4500 w. Col. Guard—Aug. 27, 1909. No. 7651 A.

Texas

Lignite and Its Relation to Other Fuels of the Southwest. A. C. Scott. Describes the extensive deposits of lignite in Texas, and also semi-bituminous fuels and crude ore deposits of the same state, comparing the relative heating power of the three classes of fuels. 3000 w. Elec. Wld—Oct. 21, 1909. No. 8809.

United States


The Coal Resources of the Southern States. Edward W. Parker. Reviews the development of the coal mining industry. 2500 w. Mfrs. Rec—Jan. 7, 1909. (Special No.) No. 1561 C.


Valuation


Virginia


Wales

No. 3 Pit, Bwllfa Colliery. An illustrated description of a modernized plant recently installed. 1700 w. Ir. & Coal Trds Rev—Aug. 27, 1909. No. 7665 A.

Washing


Ernest Coal-Washing Plant. Illustrates and describes recent additions and improvements to this plant, located at Ernest, Pa. 1600 w. Mines & Min—Jan., 1909. No. 1411 C.

A New Coal Washery in Michigan. Lee Fraser. Describes specially designed methods used for coal averaging about 15 per cent ash, and containing a quantity of crystallized pyrites. 800 w. Eng & Min Jour—May 15, 1909. No. 4684.
MINING AND METALLURGY

COPPER

Analysis

- Coal Fields of Central West Virginia. H. H. Stoek. Gives the history and geology of the region, the seams mined, methods of working, development, etc. Maps and Ills. 4000 w. Mines & Min—Oct., 1909. No. 8263 C.
- The Barren Zone of the Northern Appalachian Coal Field and Its Relation to Pittsburgh's Industries. Dr. I. C. White. Considers the problem of coal shortage and discusses the waste and the remedies. 4000 w. Pro Am Min Cong—1908. No. 4131 N.

Weathering.

See Storage, under Coal and Coke.

West Virginia.


See also same title, under RAILWAY ENGINEERING, MISCELLANY.

Alloys.

The Influence of Bismuth on Wire-Bar Copper. H. N. Lawrie. Reviews the conclusions of other investigators and reports the author's tests and conclusions. 3000 w. Bul Am Inst of Min Engrs—Sept., 1909. No. 8197 F.

Analyses.

The Precipitation of Copper Oxalate in Analysis. F. A. Gooch and H. L. Ward. An account of the experimental study of conditions under which small as well as large amounts of copper may be determined by the oxalate method. 2200 w. Am Jour of Sci—June, 1909. No. 5543 D.
Anode Casting


Arizona.

Historical Résumé of the Copper Queen Mine. Synopsis of an address delivered at Bisbee by Dr. James Douglas, giving the early struggles of this valuable mine. 2500 w. Eng & Min Jour—Feb. 20, 1909. No. 2550.

The Copper Creek Mining District, Arizona. R. Roy Sibley. Map, plans, and information in regard to this new and promising copper mining district. 1500 w. Min Wld—March 13, 1909. No. 3125.

Mining in Western Arizona and Eastern California. W. A. Root. Map and illustrated description of properties in this region. The prevailing mineral is copper carrying gold values. 1500 w. Min Wld—May 15, 1909. No. 4700.


Assaying.


Accuracy in Assays and Analyses. James W. Howson. Gives tabulated results in duplicate of most of the elements usually determined in ore analyses, with information relating to analytical work. 1500 w. Min & Sci Pr—Sept. 4, 1909. No. 7691.

COPPER

Australia.


See also Mine Sampling, under Mining.

Australia.

Methods of Copper Mining. H. Lipson Hancock. Compares Australia with America and Europe. 1800 w. Aust Min Stand—March 17, 1907. No. 4187 B.


Copper Mines in Chillagoe District, Queensland. Gerard W. Williams. Describes some of the isolated copper properties in Northeastern Australia, where small scale smelting operations are carried on. Ills. 1150 w. Eng & Min Jour—June 5, 1909. No. 5295.

The Cloncurry Copper District, Queensland. Gerard W. Williams. An illustrated account of a highly-mineralized but inaccessible region, where fuel and timber are scarce. 5000 w. Eng & Min Jour—July 24, 1909. No. 6640.

Wallaroo and Moonta Copper Mines and Smeltery. Gerard W. Williams. An illustrated description of South Australian mines which have been profitably worked for fifty years. 4500 w. Eng & Min Jour—July 10, 1909. No. 6246.

Recent Mineral Discoveries, Northern Territory. H. Y. L. Brown. An account of discoveries of copper ores, carrying gold, silver and some lead, arsenic, etc. 4000 w. Aust Min Stand—Jan. 20, 27, 1909. Serial, 2 parts. No. 3044 each B.


Mt. Malcolm Copper Mine. Mt. Margaret Goldfield (W. A.). H. P. Woodward. Reviews the history of this mine and its...
Austria.  C. M. Campbell.  Explains the nature of the deposit, scheme of operations, etc. Little timbering is required, and electric power is used. Ills. 4000 w.  Eng & Min Jour—Jan. 30, 1909.  No. 2174.


The Importance of Low Grade Boundary Ores in the Copper Production of Canada.  A. B. W. Hodges.  Information concerning these ores and their treatment.  General discussion.  4500 w.  Bul Can Min Inst—Jan., 1909.  No. 2043 N.


The Mammoth Mine and Smelter in California.  Al. H. Martin.  Describes these ore deposits on the west side of the Sacramento River, running from 3 to 12% copper and from $1.50 to $3 in gold and silver, and their treatment.  Ills. 1000 w.  Min Wld—Aug. 7, 1909.  No. 6933.


See also Arizona, under Copper.


Chile.  Conditions and Costs of Mining at the Braden Copper Mines, Chile.  William Braden.  An explanation of the general conditions, operating costs, etc.  1000 w.  Bul Am Inst of Min Engrs—Oct., 1909.  No. 8742 F.

Colorado.  Some Copper Deposits in the Sangre de Christo Range, Colorado.  Rufus Mather
MINING AND METALLURGY

Converters

Bagg, Jr. Describes the geology of this range and discusses the probable origin of the deposits. Ills. 3000 w. Ec-Geol—Dec., 1908. No. 1878 D.

Converters


Costs


Electro-Metallurgy


Extraction


Germany


Vein Deposits at Lauterberg in the Harz Mountains (Die Kupfererzgänge bei Lauterberg am Harz). Dr. Fleck. Description of these copper ores. Ills. 4500 w. Glückauf—July 24, 1909. No. 7276 D.

Great Britain

Developments of British Copper Mining. H. L. Terry. Reviews recent development work in various districts. 1500 w. Min Jour—May 22, 1909. No. 5194 A.

Idaho


Jamaica


Korea


Lake Superior

The Localization of Values in Ore Bodies and the Occurrence of Chutes in Metalliferous Deposits. Edwin E. Chase. Comments on a specimen boulder from the Calumet and Hecla conglomerate, and its bearing on the distribution of copper in the Lake Superior copper lodes. 4500 w. Ec-Geol—March, 1909. No. 3257 D.

See also Smelting, under COPPER.

Matte Cars


Matte


Experimental Researches on the Nature of Copper Mattes (Recherches expérimentales sur la Nature des Mattes de Cuivre). A. Baykoff and N. Troutneff. Their composition, structure, etc. were investigated. Ills. 7000 w. Rev de Métal—May, 1909. No. 5722 E + F.

Mexico

The Cananea Consolidated Copper Co. in 1908. L. D. Ricketts. Report of operations, development work, etc. 6000 w. Eng & Min Jour—April 3, 1909. No. 3726.


MINING AND METALLURGY

Michigan


See also same title. under GOLD AND SILVER; and Caving System, under MINING.

MICHIGAN.


Mine Waters.


Nevada.

Copper Mining at Ely, Nevada. Courtenay DeKalb. Gives the history of this important district, the geology, method of mining, etc. Ills. 2500 w. Min & Sci Pr—Jan. 2, 1909. No. 1635.


See also same title, under GOLD AND SILVER.

New Mexico.


Norway.

Ore Reduction at the Telemarken Copper Mine, Norway. W. E. Bennett. Illustrated description of a concentrating plant using the vacuum process direct without intermediary treatment. 1600 w. Min Jour—March 13, 1909. No. 3415 A.

Nova Scotia.


Ontario.


Ore Bedding.

Carnean Ore-Bedding System. R. L. Herrick. An illustrated article describing the method of mechanically making up ore beds and charging ore from them into furnaces. 4500 w. Mines & Min—Sept., 1909. No. 7487 C.

Pennsylvania.

The Newark Copper Deposits of Southeastern Pennsylvania. Edgar T. Wherry. A study of these deposits, giving the history, geology and description. Map. 4000 w. Ec-Geol—Dec., 1908. No. 1877 D.

Peru.

The Mineral Resources of the Department of Apurimac, Peru. A. Jochamowitz. Reports of various districts, where copper, silver and gold are found. 4500 w. Min Jour—Nov. 7, 1908. No. 321 A.

Mining in Morococha, Province of Yauli, Peru. Alberto Jochamonitz. Describes the geology and metalliferous deposits, showing important values in copper and silver. 2200 w. Min Jour—May 22, 1909. No. 5193 A.

See also Smelting, under COPPER.

Pot Roasting.


Production.


MINING AND METALLURGY

Pyritic Smelting

Pyritic Smelting.


Pyrometry.


Quebec.


Reduction.

A New Method of Extracting Copper from its Ores (Ein neues Kupfergewin- nungs-Verfahren). Dr. O. Frölich. Describes a leaching process with ferric chloride with subsequent precipitation of copper on iron. Ills. 3300 w. Elektrochem Zeitschr—Nov., 1908. No. 1140 D.

Refining.


See also Gold Separation, under Gold and Silver.

Reverberatory Furnaces.


Rolling Mills.


COPPER

An Electrically-Operated Reversing Copper Rolling Mill. Dr. Alfred Grädenwitz. Illustrates and describes features of electric operation in connection with a rolling mill recently installed at Waldegg, Austria. 1200 w. Elec Rev, Lond—June 18, 1909. No. 6028 A.

Russia.

Notes on the Zangezour Copper Mines. A. L. Simon. Information concerning the location, geology, mining conditions, etc. 3000 w. Inst of Min & Met, Bul. 56—May 13, 1909. No. 5599 N.

Siberia.

See same title, under Gold and Silver.

Slag Car.


Slags.


Smelter Flues.


Smelter Fumes.


Method of Treating Corrosive Gaseous Fumes. Clarence B. Sprague. Describes an invention which aims to remove the corrosive constituents and fume from the smoke before it is discharged into the atmosphere. 1500 w. Min Wld—Sept. 11, 1909. No. 7613.


Copper Fumes Converted Into a Fertilizer Ingredient. Dr. John Sharshall Grasty. Explains how sulphuric acid is to be utilized in the manufacture of acid phosphate. 3000 w. Mfrs Rec—Jan. 7, 1909. (Special No.) No. 1568 C.
MINING AND METALLURGY


Smelters.


An Up-to-Date 30-Ton Copper Smelting Plant. Charles C. Christensen. Discusses smelting processes, the power plant, furnaces, and blowers. Ills. 1500 w. Min Wld—Feb. 27, 1909. No. 2866.


Smelter Stacks.

See Stacks, under CIVIL ENGINEERING, CONSTRUCTION.

Smelting.

Notes on Copper Smelting in the West. Edward Dyer Peters. Remarks on the complete change in regard to the relative position of the blast furnace and reverberatory smelting furnaces, and other features of practice. 1800 w. Eng & Min Jour—Oct. 9, 1909. No. 8430.

Salt Lake, Utah. A letter from Mr. Courtenay DeKalb, describing a recent invention for condensing smelter fume. 1100 w. Min & Sci Pr—Nov. 14, 1908. No. 359.


Success of the Fink Process. Brief account of the successful test made of Edward Fink's invention at Garfield, Utah, which demonstrated its ability to make high grade copper matte, and blister copper. 1200 w. Min Jour—Feb. 6, 1909. No. 2482 A.

Combined Roasting and Smelting Processes for Copper Ores and Fines. Describes the Fink process tried at the Boston Consolidated Co. plant at Garfield, Utah, and the Catton process tested at West Seattle, Wash. Ills. 1500 w. Elec-Chem & Met Ind—June, 1909. No. 5347 C.

Copper Blast Furnace Smelting at Anaconda. C. Offenhaus. Illustrates and describes the types of furnaces used, materials smelted, etc. 5000 w. Eng & Min Jour—Aug. 7, 1909. No. 6941.


Smelting at Cerro de Pasco, Peru. Lester W. Strauss. Illustrates and describes the plant and methods used for these copper ores. 5800 w. Min & Sci Pr—Nov. 7, 1908. No. 382.


Sweden.

See Sulphur, under MINOR MINERALS.

Tasmania.

Notes on the Geology of Mt. Lyell, Tasmania. Hartwell Conder. Describes aspects of the geology of the North Lyell mine, and discusses the location of the main mass of the ore body. 2500 w. Aust Min Stand—Aug. 11, 1909. No. 8005 B.

Tennessee.

Mines and Works of the Tennessee Copper Co. B. Britton Gottsberger. Il-
MINING AND METALLURGY

Trade

Illustrated description of the mines and methods. 3500 w. Bul Am Inst of Min Engrs—Nov., 1908. No. 1064 C.


Trade.


The year 1908 in the Copper Trade. H. M. Cole. A review of the remarkable rise and depression of this metal, the consumption, export, production, etc. 3000 w. Ir Age—Jan. 21, 1909. No. 1860.


Utah.


GOLD AND SILVER

Amalgamation.


Moving a Mountain in Utah. Description of mining and transportation methods used to deal with ores excavated at Bingham Cañon, Utah. Ills. 1700 w. Sci Am—Oct. 16, 1909. No. 8561.

See also Smelting, under COPPER; and Copper, under ORE DRESSING AND CONCENTRATION.

Washington.

See same title, under GOLD AND SILVER.

Yukon.


GOLD AND SILVER

Alabama.

See Gold Milling, under ORE DRESSING AND CONCENTRATION.

Alaska.


See also Placers, under GOLD AND SILVER.

Alluvials.

See Australia, under GOLD AND SILVER.

Amalgamation.


MINING AND METALLURGY

Amalgamation

Electrochemical Amalgamation and Lixiviation. Elmer Ellsworth Carey. Calls attention to improvements that can be made by employing electrochemical action in connection with lixiviation and amalgamation of gold ores. 2200 w. Min Wld—April 17, 1909. No. 4018.

Increasing the Efficiency of Plate Amalgamation by Electrochemical Action. Elmer Ellsworth Carey. Outlines an electrochemical system of amalgamation designed to extract from sands or pulp all gold values not encased. 2000 w. Elec. Chem & Met Ind—May, 1909. No. 4510 C.


Argentina.


Arizona.


Assaying.


Cupellation Experiments; the Thermal Properties of Cupels. C. O. Bannister and W. N. Stanley. A comparison of the behavior of cupels made of other materials than bone-ash, giving an account of experimental work. 4000 w. Inst of Min & Met, Bul. 56—May 13, 1909. No. 5601 N.


Australia.


Mining Costs and Labor in Western Australia. Richard Hamilton. Abstract of an address at meeting of the Chamber of Mines of Western Australia. Discusses ways in which the workers may co-operate toward reducing working costs. 2500 w. Min Jour—May 1, 1909. No. 4611 A.
MINING AND METALLURGY

Australia

The Black Range District of Western Australia. J. Bowie Wilson. An illustrated account of a new goldfield which has developed quite rapidly and promises to become important. 2500 w. Eng & Min Jour—Oct. 9, 1909. No. 8424.


East Murchison Goldfield, Western Australia. Reviews recent reports by Charles G. Gibson and A. Montgomery, discussing the prospects of Wiluna and other centers. 4000 w. Aust Min Stand—Feb. 10, 1909. No. 3140 B.

The Geology of Victorian Gold Occurrence. T. S. Hart. The present number describes the geology of the containing rocks. 3000 w. Aust Min Stand—Nov. 18, 1908. Serial, 1st part. No. 1092 B.

Mining in Victoria. E. J. Dunn. Brief review of mines in the auriferous district known as the St. Arnaud field. 3500 w. Aust Min Stand—March 31, and April 7, 1909. 2 parts. No. 4076 each B.


The Deepest Gold Mine in the World. Donald Clark. Information concerning the Victoria Quartz mines, being tested at a depth of 4,525 ft. 2000 w. Aust Min Stand—Nov. 18, 1908. No. 1089 B.

Walhalla and District Mines (V.). Information concerning these auriferous mines with treatment chart. 3500 w. Aust Min Stand—Nov. 11, 1908. No. 1087 B.


Southern End of the Bendigo Goldfield. Donald Clark. Describes the goldfields line of reef and the mines now being worked. 1500 w. Aust Min Stand—April 7, 1909. No. 4618 B.

Southern End of the Bendigo Goldfield. Donald Clark, M. M. E. Describes important mines in this field. Ills. 2500 w. Aust Min Stand—April 28, 1909. No. 5394 B.

The Mount Morgan Mine, Central Queensland. J. Bowie Wilson. An illustrated account of this enormous body of gold ore which has produced $70,000,-000, the methods of mining, etc. 4000 w. Eng & Min Jour—April 10, 1909. No. 3868.


The Etheridge Goldfield, Queensland. W. C. Walworth Pearce. Describes a field where copper, lead, gold and silver have been found, being brought to notice by new railway construction. Map. 2500 w. Min Jour—May 1, 1909. No. 4610 A.

Charters Towers, Goldfield. W. E. Cameron. An illustrated review, describing the geological features, the main reefs and workings, and giving conclusions in regard to future development. 8000 w. Queens Gov Min Jour—May 15, 1909. No. 5819 B.


See also same title, under Copper; Dredging, under Gold and Silver; Accidents and Stopping, under Mining; and Gold Milling, under Ore Dressing and Concentration.

Bohemia.

The Silver Lead Mines of Przibram. H. L. Terry. Descriptive account of
Bolivia

mines famous for their great depth, and where the galena has proved increasingly argentiferous with depth. 3000 w. Min Jour—Nov. 7, 1908. No. 320 A.

Bolivia.

See Hydraulic Mining, and Peru, under GOLD AND SILVER.

Bullion Smelting.


California.


See also Hydraulic Mining, under GOLD AND SILVER.

Chlorination.

Dry Chlorine Processes. F. W. Traphagen. Explains methods used for the chlorination of complex ores containing precious metals, with zinc, lead, and iron. 4000 w. Mines & Min—May, 1909. No. 4479 C


Cobalt.


Eastern Canada. Alex. Gray. Reviews a year's work at the Nipissing, the present position and recent development. 3000 w. Min Jour—May 1, 1909. No. 4013 A.

The Fortunes of the Temiskaming & Hudson's Bay Mining Company. Alex. Gray. An account of the origin and work of this company at Cobalt, Ontario. 2500 w. Min Jour—Oct. 24, 1908. No. 75 A.


See also Sampling, under ORE DRESSING AND CONCENTRATION.

Coinage.


Colombia.


· Mining Industry of Antioquia, Colombia. S. A. Silas H. Wright. An illustrated description of this richly mineral-
MINING AND METALLURGY

Colorado

GOLD AND SILVER

Cyaniding

filtration for fast work and large recovery, illustrating and describing machines used. 3500 w. Engineering Magazine—Sept., 1909. No. 7420 B.


Newer Ore-Treatment and Metallurgical Processes and Their Machinery. Charles C. Christensen. Deals with the latest practice in a few of the recently developed processes for silver and copper ores, and the appliances used. IIs. 3500 w. Engineering Magazine—Dec., 1908. No. 679 B.

A Proposed New System for the Cyanide Treatment of Slimes. Ferdinand McCann. Describes a "dilution system" which consists of a series of slime thickeners, following the agitation tanks, with a dilution of the thickened pulp as it enters each thickener. 2500 w. Can Min Jour—Sept. 15, 1909. No. 7876 A.


See also Leasing, under MINING; and Ore Deposits, under MISCELLANY.

Cyaniding


Review of Modern Cyanide Practice in United States and Mexico. S. F. Shaw. Reviews the principal details in several modern plants. 8000 w. Bul Am Inst of Min Engrs—July, 1909. No. 6474 F.

Modern Cyaniding Practice and Machinery. Arthur Selwyn-Brown. Discusses modern methods of grinding and
MINING AND METALLURGY

Cyaniding


Cyanidation Operations in Mexico During 1908. Mark R. Lamb. Illustrates a number of plants and reviews the progress during the year. 2500 w. Min Wld—Feb. 6, 1909. No. 2322.


See also Australia, Electro-Cyaniding, Precipitation, and Mexico, under GOLD AND SILVER; Slimes, Treatment, under ORE DRESSING AND CONCENTRATION; and Air Lift, under MECHANICAL ENGINEERING, HYDRAULIC MACHINERY.

Dredging


Modern Gold Placer Dredging. George B. Massey, 2nd. An illustrated article considering details necessary to make a dredging enterprise successful, and the important points about the property. 3500 w. Cassier’s Mag—Aug., 1909. No. 7032 B.

The Method and Cost of Gold Dredging by the Elevating Bucket. Describes its use, reporting costs. Ills. 2000 w. Engng-Con—Nov. 4, 1908. No. 120.


The Metallurgy of Gold Dredging. Explains some of the troubles and causes of failure, showing the necessity of improving the present practice. 4000 w. Min Jour—Jan. 9, 1909. No. 1817 A.
MINING AND METALLURGY

Dredging


Failures in Spuds. Howard D. Smith. On the care that should be taken to provide for the strains in these long steel beams used to hold gold dredges against the bank. Ills. 500 w. Min & Sci Pr—May 22, 1909. No. 5012.


The Dredging Industry in New Zealand. Arthur C. Buckland. Describes the present condition and the outlook. 3000 w. Min Jour—May 1, 1909. No. 4612 A.

See also Siberia, under GOLD AND SILVER.

Dutch East Indies.


Electro-Cyaniding.


Electro-Metallurgy.


France.

The Three Producing Gold Mines of France. E. Walsh. Information, with a brief description of the reduction plants for these refractory ores. Ills. 1800 w. Eng & Min Jour—April 17, 1909. No. 4005.


Georgia.


Germany.

See same title, under LEAD AND ZINC.

Gold Mining.

The “Wholesale” Idea of Gold Mining. W. R. Feldtman. Discusses the policy of increasing reduction plant, up to the practicable producing limit of a mine, indicating the relation between large scale
MINING AND METALLURGY

Gold Separation

working and the best economic results. 5000 w. 1st of Min & Met, Bul. 55—April 15, 1909. No. 4737 N.

Gold Separation


Gold Value.


Hydraulic Mining.


See also Dredging, and Yukon, under GOLD AND SILVER; Ditches, under CIVIL ENGINEERING, WATER SUPPLY; and Bucket Elevators, under MECHANICAL ENGINEERING, TRANSPORTING AND CONVEYING.

Idaho.


India.

Ten Years’ Review of the Mysore Gold Mine. T. Lington. Reviews the cost, values, profits, etc., of this noted Indian mine. 1000 w. Min Wd—Aug. 14, 1909. No. 7077.

See also same title, under LEAD AND ZINC.

Korea.

See same title, under MISCELLANY.

Madagascar.

The Andavakoer Gold Mines, Madagascar. An account of these mines where gold is extracted from the quartz by pounding it with stones. 1400 w. Min Jour—Oct. 9, 1909. No. 8875 A.


Mexico.


Sonora. Describes the mines of this region, which yield gold, silver, copper, zinc and lead. Ills. 3500 w. Min Wd—July 3, 1909. No. 6161.


the history of this gold mine and illustrated description of the property. 6000 w. Mines & Min—June, 1909. No. 5237 C.


Geologic Study of the Sierra of Guanaquato. Map and illustration with description of the geology of the region, its minerals, metalliferous deposits, etc. 4000 w. Eng & Min Jour—Oct. 2, 1909. No. 8274.

Operations of Guanaquato Development Co. Illustrates and describes mines of this company where cyaniding of concentrates is being tried with a view to eliminating smelting changes as the fall in silver reduced the revenue. 3500 w. Eng & Min Jour—Oct. 2, 1909. No. 8268.


Arteaga District, Chihuahua, Mexico. W. B. Winston. Illustrated account of this highly mineralized district, which has proved an abundant producer of gold and silver. 1500 w. Min & Sci Pr—June 12, 1909. No. 5591.


Santa Barbara Mine, Chihuahua, Mexico. Describes the mining operations on a large body of silver ore. 2500 w. Mines & Min—March, 1909. No. 2955 C.

Mining in Alamos and Arteaga Districts. George M. Bloomer. Illustrated review of this part of northwestern Mexico. 1700 w. Eng & Min Jour—April 3, 1909. No. 3725.

Calabacillas Gold Mine. Brief account of this mine on the west coast of Mexico, the methods of development, and character of the ore deposits. Ills. 1000 w. Min & Sci Pr—May 15, 1909. No. 4790.

The Zacatecas District and Its Relation to Guanaquato and Other Camps. C. W. Botsford. Notes on the geology of this district and its relation to other parts of Mexico. 1000 w. Eng & Min Jour—June 19, 1909. No. 5617.

Zacatecas. Describes the mines which yield gold, silver, copper, and other values; the geology, ore deposits, etc. Ills. 6000 w. Min Wld—July 3, 1909. No. 6155.


Ore Deposits of the Velardena District, Mexico. J. E. Spurr and G. H. Garrey. A detailed description of the geology of the region, with a study of the silver-lead deposits. 12500 w. Ec-Geol—Dec., 1908. No. 1876 D.

Hostotipaquillo and the Lerma River Esquel Ordoñez. Map and illustrated description of this mining region where old mines are now being developed by improved methods. The most valuable mineral is silver sulphide. 2500 w. Min & Sci Pr—Nov. 21, 1908. No. 624.

History of the Native-Silver Mines of Batopilas. Walter M. Brodie. Illustrated description of this district in Mexico, the occurrence and mining of the ores. 5000 w. Min Wld—June 12, 1909. Serial 1st part. No. 5481.
MINING AND METALLURGY

Mexico

Hidalgo. The state has vast mineral wealth, which has been mined since 1519. Illustrates and describes some of the mines. 3500 w. Min Wld—July 3, 1909. No. 6159.


Durango. Reviews the history of this state, describing the mineral deposits, mines, etc. Ills. 2200 w. Min Wld—July 3, 1909. No. 6147.


See also Labor, under Mining.

Nevada.

Progress on the Comstock Lode. R. L. Herrick. Reviews the history and difficulties that caused the shutting down, and the events that led to the reopening. Ills. 7000 w. Mines & Min—Nov., 1908. No. 31 C.

Discovery of the Great Comstock Mine. Dan De Quille. Abstract account from


Goldfield and the Goldfield District of Nevada. John Tyssowski. An account of this camp which has yielded since its discovery, about 50 per cent. of the state's output of gold. Map. 1000 w. Eng & Min Jour—June 19, 1909. No. 5618.


Mining and Milling at Virginia City, Nevada. G. E. Walcott. Reminiscences of the camp where milling of silver ore was first practiced, and where the square-set system of timbering was invented. Ills. 3000 w. Min Wld—Nov. 21, 1908. No. 461.

Mining and Milling at Rawhide, Nevada. G. E. Walcott. An illustrated account of these gold mines, which give promise of becoming large producers. 3000 w. Eng & Min Jour—Feb. 13, 1909. No. 2464.


Mining at Hamilton, Nevada. W. S. Larsh. Describes the geology of the White Pine mining district, the silver, lead, and copper belts, and the railroad prospects. 3500 w. Mines & Min—June, 1909. No. 5246 C.
MINING AND METALLURGY

Nevada


Notes on the Pioche Mining District, Nevada. S. F. Shaw. An illustrated account of renewed activity at mines unsuccessful in the past because of the high cost of treating the ores. 3000 w. Eng & Min Jour—Sept. 18, 1909. No. 7832.

See also Open Cut, and Prospecting, under MINING; and Gold Milling, and Silver Milling, under ORE DRESSING AND CONCENTRATION.

New Mexico.


Sylvanite, New Mexico, the New Gold Camp. Fayette A. Jones. Gives the history of a district that has been worked for turquoise, lead, and copper, and now for gold. Ills. 1500 w. Eng & Min Jour—Dec. 5, 1908. No. 826.


See also same title, under COPPER; and under LEAD AND ZINC.

New Zealand.

The Gold Mines of Blackwater and Reefton Districts, New Zealand. Gives the history, geology, and development of the mines of these districts. 4000 w. Min Jour—Oct. 31, 1908. No. 186 A.

The Future of New Zealand's Alluvial Goldfields. Considers the available ground and its value, methods and machinery, and the personal factor. 4000 w. Min Jour—Nov. 21, 1908. No. 734 A.


See also Dredging, under GOLD AND SILVER.

Nicaragua.


North Carolina.

The Progress of Gold Mining in North Carolina. Edward West Lyon. Reviews the history of mines that were large producers before the Civil War, and are being re-opened. Ills. 4500 w. Eng & Min Jour—Feb. 6, 1909. No. 2316.

Nova Scotia.


See also Antimony, under MINOR MINERALS.

Ontario.


Impressions of a New Ontario Camp—Gowganda. H. E. West. Describes the deposits, and considers railroad connections essential to their development. 3000 w. Eng & Min Jour—May 1, 1909. No. 4385.


Panning Standards.

The Use of Standards in Reading Gold Pannings. Stephen J. Lett. Describes
MINING AND METALLURGY

GOLD AND SILVER

Rand


See also Prospecting, under MINING; and Alaska, under GOLD AND SILVER.

Precipitation.


Notes on Precipitation. Mather Smith. A critical discussion of methods, aiming to show that more zinc than is necessary is used and is both harmful and costly; and that precipitation boxes are often constructed on a wrong principle. 2500 w. Jour Chem, Met & Min Soc of S Africa—March, 1909. No. 4974 E.

Production.


Quebec.


Rand.

The Origin of the Gold of the Rand Goldfield. John W. Gregory. Summary of a paper read and discussed before the Inst. of Min. & Met. Examines the theories advanced. IIs. 3500 w. Ec-Geol—March, 1909. No. 3254 D.


Interesting Study of the Transvaal Ore Deposits. Etienne A. Ritter. Briefly explains the geology and petrography, giving the four hypotheses advanced to account for the deposition of the gold. 1200 w. Min Wld—March 13, 1909. No. 3127.


President’s Valedictory Address. E. J. Laschinger. Discusses the engineering and industrial progress of South Africa, espe-
MINING AND METALLURGY

Rand

GOLD AND SILVER

Wales

Chiefly the gold-mining industry. 7500 w. Jour S African Assn of Engrs.—July, 1909. No. 7036 F.


Rand Mine Waters. F. W. Watson. Deals with waters for drinking and domestic uses, and for industrial purposes, especially for boiler feed supply. Also discussion. 7000 w. Jour S African Assn of Engrs—Sept., 1908. No. 60 F.

See also Labor, and Valuation, under Mining; and United States, under Miscellaneous.

Refining.


Rhodesia.

Small Mines of Rhodesia. B. I. Collings. Describes the nature of the ore bodies, the economic and industrial peculiarities of the country, and their effect on the methods of mining and milling adopted. 5000 w. Jour Chem, Met & Min Soc of S Africa—Sept., 1908. No. 176 E.


See also Gold Milling, under Ore Dressing and Concentration.

Siberia.


Silver Refining.

See Refining, under Copper.

Tasmania.


King Island, North-West Coast, Tasmania. Donald Clark. Describes features of the country, and mineral deposits of gold and tin oxide. 1000 w. Aust Min Stand—March 10, 1909. Serial, 1st part. No. 4186 B.

Texas.


Tierra del Fuego.


Transvaal.

The Pilgrim’s Rest Gold Fields and Mining Methods. J. Moyle-Phillips. Illustrates and describes the geology and methods of development, giving the history of these mines. 6000 w. Jour Chem, Met, & Min Soc of S Africa—March, 1909. No. 4973 E.

Utah.


Wales.

See same title, under Lead and Zinc.
MINING AND METALLURGY

Washington

Washington.


West Africa.

West Africa Goldfields at the Close of 1908. Examines the causes of the recent revival and discusses the future prospects of this field. 3500 w. Min Jour—Jan. 9, 1909. No. 1816 A.

GOLD AND SILVER

Wyoming.


Yukon.


See also Alaska, and Hydraulic Mining, under GOLD AND SILVER.

IRON AND STEEL

Alabama.


Economic Features of the Birmingham District. John Leggett Pultz. Reviews the features that have been the principal cause of the rapid industrial growth of this district. Ills. 4500 w. Eng & Min Jour—Aug. 14, 1909. No. 7068.


The Gray Ores of Talladega County, Ala. John Jermain Porter. Information concerning the iron resources of the state, describing the character of the ores, and the condition of the iron industry. 2500 w. Mfrs Rec—Sept. 16, 1909. No. 7763.

Analysis.


Check Analyses of Iron Ore (Schiedsanalysen). Discusses several examples of lack of correspondence in ore analyses made in different laboratories. 2500 w. Stahl u.Eisen—June 9, 1909. No. 6563 D.

The Analysis of Chrome-Tungsten Steel (Zur Analyse von Chrom-Wolfram-Stahl). F. W. Hinrichsen and Th. Dieckmann. Results of test at the Imperial Testing Bureau in Germany. Ills. 2300
Assaying

w. Stahl u Eisen—Aug. 18, 1909. No. 7953 D.

See also Assaying, under COPPER; and Hardness, under MECHANICAL ENGINEERING, MEASUREMENT.

Assaying


Preliminary Tests from the Open Hearth Steel Furnace. C. W. Danforth. Read before the Pittsburg Sec. of the Am. Chem. Soc. Shows how speed and accuracy may be attained in laboratory practice. 3000 w. Ir Age—April 8, 1909. No. 3821.

Australia.


Austria.


Bessemer Process.


Blast-Furnace Gas.

2500 w. Ir & Coal Trds Rev—Dec. 11, 1908. Serial, 1st part. No. 1224 A.

The Basic Bessemer Plant at the Burbach Works (Das neue Thomasstahlwerk der Burbacher Hütte). F. Schroeder. Illustrated description. Plates. 11000 w. Stahl u Eisen—Nov. 11, 1908. No. 1142 D.


See also Converters, under MECHANICAL ENGINEERING, MACHINE WORKS and FOUNDRIES.

Blast-Furnace Chargers.

Blast-Furnace Chargers. Illustrates and describes various types of chargers in use in Europe. 2800 w. Ir & Coal Trds Rev—March 12, 1909. No. 3429 A.

Blast-Furnace Design.


Blast-Furnace Fuels.


Blast-Furnace Gas.


MINING AND METALLURGY

Blast-Furnace Gas


See also Gas Power Plants, under MECHANICAL ENGINEERING, COMBUSTION MOTORS; and Blowing Engines, under IRON AND STEEL.

Blast-Furnace Lining.


Blast-Furnace Operation.


Blast-Furnace Plants.

The Lübeck Iron Works (Das Hoch- tetwerk Lübeck). Illustrated detailed description. 3000 w. Stahl u Eisen—April 28, 1909. No. 4859 D.

Blast-Furnace Practice.


On Charcoal Blast-Furnace Practice in the Ural. M. A. Pavloff. Gives some numerical data relating to the seven blast furnaces in the Ural region. 3500 w. Engr, Lond—May 14, 1903. No. 4907 A.


See also Electro-Metallurgy, under IRON AND STEEL.

Blast Furnaces.

Development in the Size and Shape of Blast-Furnaces in the Lehigh Valley, as Shown by the Furnaces at the Glendon Iron Works. Frank Firmstone. 4000 w. Bul Am Inst of Min Engrs—Sept., 1909. No. 8195 F.

Designing Blast Furnaces. M. Pavloff. Gives data from experience and personal knowledge and shows the application of these data to the designing of blast furnaces working under different conditions. 7500 w. Ir & Coal Trds Rev—July 9, 1909. No. 6431 A.


The Lubeck Blast Furnaces (Les hauts Fourneaux de Lubeck). Illustrated description of the two furnaces at this German iron works. 2000 w. Génie Civil—Sept. 25, 1909. No. 8633 D.

See also Electro-Metallurgy, under IRON AND STEEL.
MINING AND METALLURGY

Blast-Furnace Slag


Blowing Engines.


See also Air Compressors, and Turbo-Compressors, under MECHANICAL ENGINEERING, POWER AND TRANSMISSION.

Bosnia.


British Columbia.

See Washington, under IRON AND STEEL.

California.

An Iron Deposit in the California Desert Region. Charles Colcock Jones. Illustrates and describes a deposit of soft, or semi-hard hematite ore. 2500 w. Eng & Min Jour—April 17, 1909. No. 4003.

IRON AND STEEL

Dry-Air Blast

Canada.


China.


Copper-Clad Steel.

Copper-Clad Steel. Wirt Tassin. Describes a process by which steel is covered with a copper coat of any desired thickness, describing the product and its uses. 1600 w. Eng & Min Jour—Oct. 23, 1909. No. 8724.

Cost.

Cost of Iron Production in Britain and America. A criticism of recent statements made by Mr. Andrew Carnegie. 2500 w. Engr, Lond—May 7, 1909. No. 4729 A.

Cuba.


Desulphurization.


Dry-Air Blast.


Gayley's Invention of the Dry Blast. R. W. Raymond. Discusses the value of this invention, the commercial economy, etc. 3500 w. Bul Am Inst of Min Engrs—Jan., 1909. No. 2425 F.
MINING AND METALLURGY

Dry-Air Blast


Economics in the Manufacture of Iron and Steel. G. B. Waterhouse. Describes important lines along which economies are being effected in this industry. The present article deals with the Gayley dry blast process. Ills. 4000 w. Engineering Magazine—May, 1909. No. 4340 B.


Experience with the Gayley Dry Blast at the Warwick Furnaces, Pottstown, Pa. Edward B. Cook. A brief illustrated description of the Warwick plant, with account of its very satisfactory working. 5000 w. Bul Am Inst of Min Engrs—Nov., 1908. No. 683 C.


IRON AND STEEL

Electro-Metallurgy


Electro-Metallurgy


The Treatment of Steel in Electric Furnaces. Henry M. Howe. Considers the casing of the phenomena noted in these furnaces, and general ideas about the purification of iron. Ills. 8000 w. Eng & Min Jour—Aug. 28, 1909. No. 7389.

Electric Smelting. F. W. Harbord. Abstract of a paper read at meeting of the W. of Scotland Ir & Steel Inst. Deals particularly with the results obtained. 4500 w. Elec Engr, Lond—May 7, 1909. No. 4715 A.

Electric Smelting in Production of Iron and Steel. E. J. Ljungberg. Read before the Ir. & St. Inst. Brief account of present practice, the furnaces used, etc., describing a furnace similar to a common blast-furnace, but with three electrodes supplied with three-phase alternating current. 1000 w. Elec Engr, Lond—Oct. 1, 1909. No. 8478 A.


MINING AND METALLURGY

Electro-Metallurgy


Notes on Iron and Steel. Bradley Stoughton. Discusses briefly the electro-thermic manufacture of iron and steel, and the properties and uses of alloy steels. IIs. 3000 w. Jour Fr Inst—Feb., 1909. No. 2740 D.

Reduction of Iron Ore in the Electric Furnace. Abstract of a paper by Remo Catani, who has recently investigated the possibilities of the electric furnace in iron ore reduction in comparison with the blast furnace. 1700 w. Elec-Chem & Met Ind—April, 1909. No. 3659 C.

The Production of Pig Iron at the Electric Furnace and the Industrial Utilization of Pyrite Residue. F. E. Carcano. Gives an interesting case in which the electric furnace can well hold its own against the blast furnace, with a general comparison. 2000 w. Elec-Chem & Met Ind—April, 1909. No. 3660 C.


Blast Furnaces and Electric Furnaces (Hochofen und elektrischer Ofen). A comparison of the two for the production of pig iron. 2800 w. Stahl u Eisen—Feb. 24, 1909. No. 3364 D.

The Electro-Metallurgy of Iron (L'Electrosidérurgie). Charles Le Chatelier. Comments on, and abstracts of, recent publications on the purification of steel in the electric furnace and on the general progress of the electro-metallurgy of iron. IIs. 6500 w. Rev de Métal—Nov., 1908. No. 1109 E + F.

IRON AND STEEL

Electro-Metallurgy

An Electric Furnace with One Electrode and with a Conducting Hearth (Sur un Four électrique a une seule Electrode et à Sole Conductrice). M. Durnuis. Researches on such a furnace. IIs. 1500 w. Rev de Métal—Oct., 1908. No. 515 E + F.

Ingot Iron from the Electric Furnace. Trans. of an article by B. Osann, in Stahl und Eisen. Gives results obtained with the Stassano furnace. IIs. 3500 w. Ir & Coal Trds Rev—Nov. 6, 1908. No. 330 A.


Deoxidation and Desulphurization in Electric Steel Furnaces. Dr. R. Amberg. Compares the different electric steel furnaces with respect to the degree and distribution of temperature. 1000 w. Elec-Chem & Met Ind—March, 1909. No. 2986 C.


The Production of Electric Steel. Jas. A. Seager. Illustrated description of the Girod electric furnace, and the properties
MINING AND METALLURGY

Electro-Metallurgy


The Girod Electrical Process for the Manufacture of Steel Castings. Illustrated description of an installation in Switzerland, with report of operative methods, cost, etc. 2500 w. Ir & Coal Trds Rev—Dec. 24, 1908. No. 1547 A.


The Kjellin and Röchling-Rodenhauser Electric Furnaces. Dr. F. A. Kjellin. Describes the construction and advantages of the Kjellin furnace, giving cost of production of steel; and explains the working of the Röchling-Rodenhauser furnace, and cost of production. IIs. 2000 w. Elect’n, Lond—Oct. 8, 1909. No. 8867 A.


IRON AND STEEL


Pig Iron Production in an Electric Shaft Furnace. Illustrated account of investigations at Domnarvft, Sweden, by Dr. Eugene Haanel. 5000 w. Ir Age—Sept. 16, 1909. No. 7766.

Electric Production of Pig Iron. Illustrated description of the electric blast furnace in use at Domnarvft, Sweden. 700 w. Engng—Sept. 24, 1909. No. 8363 A.

See also same title, under ELECTRICAL ENGINEERING, ELECTRO-CHEMISTRY; Lash Process, under IRON AND STEEL; and Castings, under MECHANICAL ENGINEERING, MACHINE WORKS AND FOUNDRIES.

Exhibitions.

Iron and Steel at the Franco-British Exhibition. H. Bauer. Detailed description of exhibits, arranged under their respective districts. 14000 w. Jour Ir & St Inst—No. III, 1908. No. 3481 N.

Ferro-Alloys.


The Dangers of Ferro-Silicon. Gives the report of D. R. Wilson, on “The Properties of Ferro-Silicon,” showing the danger connected with its transport. 1500 w. Engng—Dec. 25, 1908. No. 1537 A.


Ferro-Manganese in the Blast Furnace (Ferromangan im Hochofen). O. Höhl. A review of Josef Jakobi’s recent experiments on the production of ferro-manganese from manganese ore in the blast furnace. IIs. 1400 w. Stahl u Eisen—July 21, 1909. No. 7253 D.
MINING AND METALLURGY

Georgia


Georgia.


Germany.


See also Trusts, under INDUSTRIAL ECONOMY.

Harmet Process.

The Harmet Process Applied to Open-Hearth Steel at the "Deutscher Kaiser" Works, Bruckhausen (Das Harmetverfahren im Braunkohlenwerk "Deutscher Kaiser" in Bruckhausen). Illustrated description of methods, appliances and results. 6500 w. Stahl u Eisen—Nov. 4, 1908. No. 1141 D.

Hot-Blast Stoves.


Illinois.


India.

India as an Iron Producer. Information concerning the ancient workings, the materials available, the difficulties experienced, etc. 2500 w. Engr, Lond—March 12, 1909. Serial, 1st part. No. 3425 A.

The Development of the Iron and Steel Industry in India. Information concerning this industry. 1000 w. Ir & Coal Trds Rev—April 16, 1909. No. 4307 A.

Industrial Development.

Iron and Steel. F. W. Harboard. Read before the Soc. of Chem. Ind. Considers their relation to other industries and the causes that have assisted their vast development. 4500 w. Sci Am Sup—Oct. 23, 1909. Serial. 1st part. No. 8587.

Industry.


Ingot Compression.


The Harmet Process for the Compression of Steel Ingots (Développement du Procédé de Compression de l’acier par Tréfilage). F. Beutter. Describes the development of the process and some of the more important installations in which it is used. Ills. 3000 w. Rev de Métal—Jan., 1909. No. 2617 E + F.

Ingots.


MINING AND METALLURGY

Italy


Apparatus for the Continuous Production of Steel Ingots. Illustrates and describes the apparatus designed by M. Doupur. 1000 w. Mech Engr—Sept. 24, 1909. No. 8352 A.

Japan

The Iron and Steel Industries of Italy. Abstract of a paper by M. P. Nicou. A review of deposits, production, imports, exports, etc. 2500 w. Ir & Coal Trds Rev—Dec. 11, 1908. No. 1225 A.

Lake Superior


Mesabi Range Mining. J. Fred Wolff. Describes the three prominent methods of mining, the open-pit, milling, and underground systems. Ills. 4800 w. Wis Engr—June, 1909. No. 5690 D.


Lapland


Lash Process


Maryland


Michigan


Minnesota


Newfoundland


New York

Clinton Iron Ores in New York State. Data from a report issued by the Educational Department of the State, concerning a recent investigation of their extent and character. 2500 w. Ir Age—Nov. 12, 1908. No. 218.


The Clinton Ores of New York State. D. H. Newland. A summary of the more important economic features as shown in recent investigation. The occurrence of iron ores, their origin, and mining opera-
MINING AND METALLURGY

New Zealand

IRON AND STEEL

New Zealand.


Nova Scotia.


Ohio.

The Mahoning Valley as an Iron Center. Joseph F. Froggrett. Reviews the history of this iron district in Ohio, the present article covering the pioneer period. Ills. 3800 w. Ir Trd Rev—Jan. 21, 1909. Serial, 1st part. No. 1890.


Ontario.


Open Hearth.


See also Assaying, and Harmet Process, under IRON AND STEEL: Gas Produces, under MECHANICAL ENGINEERING: Combustion Motors; and Foundry Furnaces, under MECHANICAL ENGINEERING, MACHINE WORKS AND FOUNDRIES.

Pennsylvania.


Equipment and Ore Handling at Cornwall Mine. Quincy Bent. Illustrated description of a mine in Lebanon Co., Penn., where the ore is mined by steam shovels, crushed in pit, handled in 50-ton cars, etc. 1200 w. Eng & Min Jour—Oct. 9, 1909. No. 8426.

Pig Casting.


Pig Iron.

Pig-Irons and Their Use. E. Adamson. Abstract of a paper read before the Staffordshire Ir. & St. Inst. Classifies the various pig-irons, and briefly considers the effect of carbon, silicon, sulphur, phos-
MINING AND METALLURGY

Pipe Making

phorus, and manganese, the tests, and grading. 4500 w. Ir & Coal Trds Rev—Feb. 26, 1909. No. 3074 A.

Pipe Making.


Piping.


See also Ingots, under IRON AND STEEL.

Production.

The World’s Production and Consumption of Iron Ore. Statistics from a recently issued paper by the British Board of Trade. 4550 w. Ir & Coal Trds Rev—April 16, 1909. No. 4388 A.

Iron and Steel Production in Recent Years. Editorial review of statistics from the Board of Trade publication, in regard to the principal countries. 2000 w. Engng—May 14, 1909. No. 4964 A.

Rolling Mills.


Gas Power for Rolling Mills. Dr. Franz Erich Junge. A discussion limited to a large modern combined iron and steel works embracing all the departments necessary to transform ore into finished product. Ills. 6000 w. Ir Trd Rev—May 13, 1909. No. 4641.


IRON AND STEEL

Rolling Mills


Manganese Steel Products. Illustrates and describes progress with the Potter process of rolling as employed at Paterson, N. J. 2500 w. Ir Age—Sept. 30, 1909. No. 8199.


Power Requirements in Rolling Steel. Gives some results of the investigations of a special German commission. 1700 w. Ir Age—March 11, 1909. No. 3077.


Determining the Amount of Power Required in Rolling Mills. Extracts from an article in Stahl und Eisen, by Dr. H. Ortman, reviewing extensive experiments made by direction of the German Ironmaster's Assn. Ills. 7000 w. Ir & Coal Trds Rev—May 14, 1909. No. 5139 A.


Hydraulic Machines in English Rolling Mills (Einige hydraulische Vorrichtungen en englischer Walzwerke). K. Rummel. Illustrates and describes apparatus and
Rolling Mills

IRON AND STEEL

MINING AND METALLURGY

Russia

Rolling Mills for various purposes. 3000 w. Stahl u Eisen—Oct. 14, 1908. No. 546 D.


New Portable Roll Ways (Neue fahrbare Hebetsche). Illustrated description of recent conveying devices for rolling mills. 2400 w. Stahl u Eisen—Nov. 18, 1908. No. 1145 D.


Determination of the Size of Motors for Finishing Rolls (Bestimmung der Größe von Motoren zum Antrieb von Fein und Stabwalzwerken). Gives curves and other data on which determinations may be made. Ills. 1800 w. Stahl u Eisen—Sept. 15, 1909. No. 8653 D.

Tests of a Steam-Driven Reversing Ingot Roll Train (Betriebversuch an einer Dampf-Umkehrblockstrasse). Results of elaborate power consumption tests. Ills. 2500 w. Stahl u Eisen—Aug. 25, 1909. No. 7956 D.


The Bray Continuous Sheet Mill. Illustrated description of a mill at South Sharon, Pa. 1500 w. Ir Age—Dec. 31, 1908. No. 1397.

Three-High Rolling-Mill at Mossend Steel Works. Drawings and brief description. Plate. 400 w. Engng—Nov. 13, 1908. No. 446 A.

New Gas-Driven Rolling-Mill Plant at Mossend Works. Illustrated description of the gas plant for new rolling-mill engines and furnaces, at these large works near Glasgow. 4000 w. Engng—Nov. 27, 1908. No. 865 A.


See also Sheets, Ingot Compression, Pipe Making, and Steel Works, under IRON AND STEEL; Electric Hoisting, under MINING; Electric Driving, under MECHANICAL ENGINEERING, POWER AND TRANSMISSION; and Rails, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS.

Russia

Russian Iron Trade Conditions. Gives the history of the proposed pool of the
MINING AND METALLURGY

Sand Boils


The Iron Works of South Russia (Die Eisenhütten Südrusslands). Z. Bielski. Brief general description of their equipment, etc. Serial, 1st part. 3200 w. Oest Zeitschr f Berg u Hüttenwesen—July 31, 1909. No. 7269 D.

Sand Boils


Segregation


Sheets


See also Rolling Mills, under IRON AND STEEL; and Cleaning, under MECHANICAL ENGINEERING, MACHINE WORKS AND FOUNDRIES.

Steel Making


Manufacture of Steel for Castings. Bradley Stoughton. The open-hearth acid and basic furnaces are compared with the side-blow converter and crucible processes. 3000 w. Foundry—March, 1909. No. 2946.


Modern Methods of Bridge Construction. Explains methods and plant used by first-class British works. 5500 w. Engr, Lond—Feb. 19, 1909. No. 2897 A.

See also Lash Process, under IRON AND STEEL.

Steel Works


New Steel Works in the United States. The present number gives an illustrated description of the Saucon Works of the Bethlehem Steel Co. 3500 w. Engr, Lond—Nov. 20, 1908. Serial, 1st part. No. 742 A.


Some Observations on Structural Shop Management. Samuel E. Duff. Discusses the principles of accurateness as applied to shop management. Also general discussion. 8500 w. Pro Engrs' Soc of W Penn—April, 1909. No. 4555 D.

Electric Power Problems in Steel Plants. R. Tschentscher. Considers the problems in connection with the various classes of steel mills, and some of the complications. 3500 w. Pro Am Inst of Elec Engrs—Sept., 1909. No. 8179 F.

MINING AND METALLURGY

Steel Works

Beardmore's Steel Works at Parkhead, Glasgow. Illustrated detailed description of a newly equipped and organized factory for the production of guns, armor, etc. 5500 w. Engng—April 2, 1909. Serial, 1st part. No. 5905 A.

The Friedenshütte Works. Illustrated description of large works in Germany. Translated from Stahl und Eisen. 4000 w. Ir & Coal Trds Rev—July 16, 1909. No. 6694 A.


See also Bessemer Process, and Electro-Metallurgy, under Iron and Steel; Electric Driving, under MECHANICAL ENGINEERING, POWER AND TRANSMISSION; Ore Handling, and Cranes, under MECHANICAL ENGINEERING, TRANSPORTING AND CONVEYING.

Sweden.


Tariff.

See same title, under INDUSTRIAL ECONOMY.

Tennessee.


Texas.


Iron and Steel Trade


Trade.

The Iron and Steel Industry in 1908. Reports a year of depression and small demand with gradual recovery. 8500 w. Eng & Min Jour—Jan. 9, 1909. No. 1582.


Progress of the Iron and Steel Industry. P. N. Cunningham. Presidential address reviewing the progress of the iron and steel industry in the West of Scotland for the last 30 years. Plate. 7500 w. Jour W of Scotland Ir & Steel Inst—Oct., 1908. No. 894 N.


377
MINING AND METALLURGY

Tube Making


UNITED STATES.

The Iron-Ore Supply of the United States. C. Willard Hayes. Describes the commercial iron ores, and gives the writer’s conclusions as to duration of the supply. 2200 w. Bul Am Inst of Min Engrs—April, 1909. No. 4086 F.


LEAD AND ZINC

Austria.

See Lead Milling, under ORE DRESSING AND CONCENTRATION.

Austria.

See same title, under COPPER.

France.

The Mining and Milling of Silver, Lead and Zinc Ores at Pierrehite Mines, France. William Waters Van Ness. Reviews the history of these mines, describing conditions, mining methods, etc., and giving costs. Ills. 7000 w. Bul Am Inst of Min Engrs—Nov., 1908. No. 684 C.

Germany.


India.


Lead.

See same title, under MECHANICAL ENGINEERING, MATERIALS OF CONSTRUCTION.

Lead Smelting

Rec—Jan. 7, 1909. (Special No.) No. 1563 C.


U. S. Steel Corporation.

The United States Steel Corporation’s 1908 Report. Reviews this report, which shows a great decline in earnings. 6500 w. Ir Age—March 25, 1909. No. 3482.

Washington.


Lead Alloys.

See Alloys, under MISCELLANY.

Lead Assaying.


Lead Milling.


Lead Refining.

See Electro-Metallurgy, under GOLD AND SILVER; and Refining, under COPPER.

Lead Smelting.

Smelting Practice at Granby Works, Missouri. Evans W. Buskett. Scotch hearth furnaces are used to smelt lead concentrates. Treatment of smelter fumes with recovery of lead in quantity. 1700 w. Min Wld—Dec. 19, 1908. No. 1065.

Lead Smelting and Refining Practice at Trail, B. C. Describes the treatment of these sulphide ores. 1500 w. Can Min Jour—July 15, 1909. Serial, 1st part. No. 6408.

Modern Silver-Lead Smelting at Laurium, Greece. Henry F. Collins. Describes the ore treatment, and the new American
LEAD AND ZINC.

Massachusetts

Blast furnace installed. Ills. 2500 w. Eng & Min Jour—May 1, 1909. No. 4381.


See also Smelters, under COPPER.

Massachusetts.

See Ore Deposits, under MISCELLANY.

Mexico.

Development of Zinc Mining Industry in Mexico. The northern district is reviewed by Philip C. Hanna; the central district by Thomas W. Voetter; the northwest district by Lewis A. Martin. 4000 w. Min Wld—July 3, 1909. No. 6141.

The Mapimi District. J. D. Villarello. Describes the ore deposits. The most abundant primary minerals are mispickel, galena, blende and iron pyrite with calcite as the gangue. The precious metals are irregularly distributed. Ills. 1200 w. Min Wld—July 3, 1909. No. 6149.


See also same title, under GOLD AND SILVER.

Missouri.


See also Ore Deposits, under MISCELLANY.

Nevada.

See same title, under GOLD AND SILVER.

New Mexico.


Zinc Smelting.


The Central Zinc Company’s Works at Seaton Carew. Illustrated detailed description of extensive new works on the
MINING AND METALLURGY

Zinc Smelting


Zinc Tariff.


Zinc Trade.


MINOR MINERALS

Alkaline Earths.

A System of Qualitative Analysis for the Common Elements. William C. Bray. Contribution, No. 39, from the Research Laboratory of Physical Chemistry of the Mass. Inst. of Tech. This fourth article of a series treats of the analysis of the alkaline earth and alkalai groups. 15500 w. Tech Qt—Dec., 1908. No. 3449 E.

Aluminium.


Notes on Aluminium. Prof. A. Humboldt Sexton. Its properties, compounds, minerals, purification, etc., are discussed in the present number 3300 w. Mech Engr—Nov. 13, 1908. Serial, 1st part. No. 430 A.

Aluminium as a Factor in the Electrical Industry. The present number briefly considers its use both for electrical purposes and in other ways. 2500 w. Electr, Lond—Nov. 27, 1908. Serial, 1st part. No. 862 A.

The Electrolytic Reduction of Aluminium as a Laboratory Experiment. M. deKay Thompson. Describes difficulties encountered in attempting to electrolyze a solution of aluminium oxide in melted cryolite according to the Hall patent, showing how they may be overcome to a certain extent. 1500 w. Elec-Chem & Met Ind—Jan., 1909. No. 1679 C.


The Development of the Aluminium Corporation, Ltd. Illustrated description of plants for the production of aluminium by the electro-thermal process. 6500 w. Elec Rev, Lond—Nov. 6, 1908. No. 310 A.


The Electrical Reduction of Aluminium, a Laboratory Experiment (Die elektrische Reduktion des Aluminiums, ein Laboratoriums-Experiment). F. Bock. Describes the experiments and gives results. IIs. 2000 w. Elektrchem Zeitschr—Aug., 1909. No. 7947 D.

Alunite.


Prospecting for Ores of the Goldfield Type. J. Volney Lewis. Discusses conditions under which Alunite indicates the presence of gold and its occurrence. 1150 w. Eng & Min Jour—June 5, 1909. No. 5293.

Amatrice.

Amatrice, a New Gem Stone of Utah. Edward R. Zalinski. A matrix stone, con-
MINING AND METALLURGY

Antimony

sisting of the minerals variscite and chalcedony, with wadrite or possibly other hydrous aluminum phosphates and quartz. Ills. 2000 w. Eng & Min Jour—May 22, 1909. No. 4920.

Antimony.

Antimony. E. B. Wilson. Its uses, ores, methods of testing, etc., are discussed. 3000 w. Mines & Min—May, 1909. No. 4482 C.

Notes on Antimony. Prof. A. Humboldt Sexton. Considers its physical and chemical properties, its compounds, minerals, treatment, etc. Ills. 4000 w. Mech Engr—Oct. 30, 1908. No. 162 A.


See also Alloys, under MISCELLANY.

Arsenic.

Arsenic (As). E. B. Wilson. Deals with its uses, occurrence, tests, methods of analysis, etc. 3000 w. Mines & Min—June, 1909. No. 5243 C.

Asbestos.


Quebec Asbestos: World’s Supply Controlled. Alex. Gray. Information in regard to output, value, profits, etc. 3500 w. Min Jour—April 3, 1909. No. 3904 A.

On the Asbestos Deposits of the Eastern Townships of Quebec. John A. Dresser. Describes the geology, the deposits, and gives other information. Ills. 2500 w. Ec-Geol—March, 1909. No. 3255 D.


The Chrysotile Asbestos Formation at Marble Bar, Western Australia. C. W. Marsh. Describes the more notable fea-
tures of the occurrence, and discusses working costs. 3000 w. Min Jour—Sept. 25, 1909. No. 8348 A.

Barium.


Borate.

The Borate Deposits of the Atacama Desert, Argentine Republic. Dr. Fritz Reichert. Briefly describes the most important deposits, giving geological data. 2500 w. Min Jour—June 12, 1909. No. 5632 A.

Borax.


Boron.

Boron. E. B. Wilson. Information concerning the minerals in which it occurs; tests and methods of analysis; its uses, etc. 3500 w. Mines & Min—Oct., 1909. No. 8262 C.

Building Stone.


Granite and Marble Resources of the South. Ernest F. Burchard. Information concerning production, the distribution and quality of the deposits. 4000 w. Mfrs Rec—Jan. 7, 1909. (Special No.) No. 1564 C.

Carborundum.


See also Grinding Wheels, under MECHANICAL ENGINEERING, MACHINE WORKS AND FOUNDRIES.
MINING AND METALLURGY

Cement


Cement Raw Meal Mixer and Store. Details and illustrations of the cement works at Cambridge, Eng. 1200 w. Engr, Lond—Nov. 13, 1908. No. 452 A.

MINOR MINERALS


The Tonto Portland Cement Works, at Roosevelt Dam, Arizona. Edgar Percival. Illustrated description of this plant constructed to supply the dam works, with features of the manufacture and statement of cost. 2000 w. Munic Engr—Feb., 1909. No. 2333 C.

See also Blast Furnace Slag, under IRON AND STEEL.

Chromite.


Clay.


Diamonds


Kimberlite Rock and the Origin of Diamonds. F. W. Voit. Gives a description of the diamond-bearing rocks, and a study
MINING AND METALLURGY

Diamonds

MINOR MINERALS

Manganese

of the deposits. 3000 w. Eng & Min Jour —April 17, 1909. No. 4004.


The Diamond Bearing Highlands of Bahia. J. C. Branner. Illustrates and describes this region in Brazil, outlining the geology, describing the diamond producing area, and mining methods used. 4000 w. Eng & Min Jour—May 15, 1909. Serial. 1st part. No. 4682.


Fluorspar.

Kentucky Fluorspar and Its Value to the Iron- and Steel-Industries. F. Julius Fohs. Describes the Memphis mine, near Marion, Ky., discussing the origin of the deposits, describing the fluorspar mills, and explaining the value of the product in the metallurgy of iron and steel. 5000 w. Bul Am Inst of Min Engrs—April, 1909. No. 4089 F.


Graphite.

Graphite in the South. Dr. F. W. Ihne. Information concerning the varieties of graphite, where found, the value of southern deposits, the development, etc. Ills. 10000 w. Mfrs Rec—Jan. 7, 1909. (Special No.) No. 1567 C.

The Work of the International Acheson Graphite Company at Niagara Falls. Illustrates and describes the present equipment of these works. 1800 w. Elec-Chem & Met Ind—May, 1909. No. 4503 C.


See also same title, under Ore Dressing and Concentration.

Gypsum.

Gypsum Mining. W. J. Jones. Describes the application of room and pillar methods at mines near Akron, N. Y. 1000 w. Mines & Min—June, 1909. No. 5238 C.


Lime.

See Cement, under Minor Minerals.

Manganese.


The Manganese Ore Deposits of Georgia. Thomas L. Watson. A study of the distribution, origin, etc. 3500 w. Ec-Geol—Jan.-Feb., 1909. No. 2718 D.


A Manganese Deposit in Southern India. R. O. Ahlers. Describes particularly the deposits of the State of Sandur, Bellary District, in the north of Madras Presidency. 4000 w. Inst of Min & Met. Bul. No. 50—Nov. 12, 1908. No. 893 N.

Manganese, a Metal of the Future (Un Métal d’Avenir: le Mangané). A review of its properties, ores, sources, appli-
MINING AND METALLURGY

Marble

MINOR MINERALS

Nickel

Cations, etc. 2000 w. Monit Indus—Feb. 13, 1909. No. 3329 D.

See also Lead Assaying, under Lead and Zinc; and Alloys, under Miscellany.

Marble.


Mercury.


See also Australia, under Coal and Coke.

Mica.

Mica Mining. A. S. Atkinson. Remarks on the increased value of mica deposits, the mining methods in the United States and Canada, etc. 1000 w. Eng & Min Jour—May 8, 1909. No. 4566.

Molybdenite.


Molybdenum.

Occurrence and Uses of Molybdenum Ores. Summary of facts in regard to the occurrence, production and uses, as given in a Bulletin of the Imperial Institute. 2500 w. Aust Min Stand—Dec. 9, 1908. No. 1894 B.

Monazite.

Monazite and Monazite-Mining in the Carolinas. Joseph Hyde Pratt, and Douglas B. Sterrett. Describes the mineral, its occurrence, geology, the deposits, magnetic separation, and uses. Illus. 9500 w. Bul Am Inst of Min Ingrs—June, 1909. No. 5848 F.


Natural Gas.


Geology as Applied to the Formations in which Natural Gas is Found in the Appalachian Regions. John Adams Bow- nocker. Considers only the northern part of this field. 6000 w. Am Gas Lgt Jour—June 28, 1909. No. 5929.

The Anticlinal and Hydraulic Theories of Oil and Gas Accumulation. Malcolm J. Munn. Discusses practical application of these theories and the advantages of the latter in prospecting for new pools of oil and gas. Also discussion of above by F. G. Clapp. 6500 w. Ec Geol—Sept.—Oct., 1909. No. 8566 D.


The Natural Gas Situation at Huntsville, Ala. John R. Lynn. Aims to give a true statement of what is known of this field. 3000 w. Am Gas Lgt Jour—Feb. 8, 1909. No. 2212.

Natural Gas for Baltimore. C. F. Uebelacker. Report to a committee of the Baltimore city council. Briefly considers methods of manufacture of artificial gas, its properties, price, etc. Natural gas, its lighting, and heating value, cost, mixed gas, etc. 2500 w. Pro Age—Sept. 15, 1909. No. 7764.


See also Oil, under Minor Minerals.

Nickel.


MINING AND METALLURGY

Niobium

The Best Method for the Electrolytic Separation of Nickel (Wie schudet man Nickel am Besten ab auf elektrolytischem Wege?). Results of tests under various conditions. Serial, 1st part. 1500 w. Elektrochem Zeitschr—Feb., 1909. No. 3356 D.

Niobium


Nitrate

The Nitrites of Tarapaca, Chile. V. Quezada Carneyro. Describes the nature and genesis of these deposits. 2500 w. Min Jour—May 22, 1909. No. 5192 A.

The Nitrate Deposits of Chile. Gilmour E. Brown. Describes the deposits, discussing their origin, process of extraction, etc. Iils. 5000 w. Min Jour—Aug. 28, 1909. No. 7640 A.

Ocher

The Mining and Treatment of Ocher in Georgia. S. Mays Ball. Describes the deposits, their mining and preparation for market. Iils. 1500 w. Min Wld—March 6, 1909. No. 3021.

Oil

The Petroleum Resources of the United States. David T. Day. Considers the store of petroleum known within the limits of the country, the rate at which it is being exhausted, the extent of waste, and suggests methods by which its use may better serve both present and future needs. Map. 4000 w. Am Rev of Revs—Jan., 1909. No. 1735 C.


Petroleum in 1908 Largest Production on Record. David T. Day. Reports the production from the different fields. 3500 w. Min Wld—Feb. 6, 1909. No. 2324.


Notes on the Oil and Gas Industry. Describes the geology of the deposits, giving the history and development of the industry. Map. 2400 w. Min Wld—Nov. 28, 1908. No. 708.

Studies in the Application of the Anticlinal Theory of Oil and Gas Accumulation. Malcolm J. Munn. This paper considers the structural and stratigraphic position of certain oil pools in western Penn. with the object of showing that the accumulations are not due to movement by difference in gravity of oil and salt water contained in the oil bed. Iils. 5500 w. Ec-Geol—March, 1909. No. 3356 D.

The Steel Oil Derrick. R. B. Woodworth. Reviews briefly the history of the petroleum industry, the production, the geological conditions affecting the depth of wells, types of well-drilling mechanism, the loads on the derrick and machinery, stresses, and the complete drilling machine of 1909 design. Iils. Discussion. 17500 w. Pro Engrs' Soc of W Penn—June, 1909. No. 6375 D.


New Method of Extracting Oil from Boreholes. Frederick A. Talbott. The principal feature is an endless cable covered with absorbent material and operated from a drum at the surface. 2000 w. Eng & Min Jour—May 15, 1909. No. 4686.


Oil Field at Follansbee, W. Va. Frank W. Brady. Gives the location of the wells, with history of the development, production, etc. 3000 w. Mines & Min—Dec., 1908. No. 716 C.

Notes from the Oil Fields. Frank W. Brady. Brief account of development in the Brooke County, W. Va., and Steuben-
MINING AND METALLURGY

Oil


The Los Angeles Oil Industry. Percy E. Barbour. Brief account of these deposits and the history of their development. 1000 w. Eng & Min Jour—Aug. 21, 1909. No. 7186.


S. Pearson & Son’s Uncontrollable Oil Gusher. Illustrated account of the well near Dos Bocas, Mexico, which burned nearly two months and defeated all efforts to save the oil. 2000 w. Eng & Min Jour—Jan. 2, 1909. No. 1438.


Oil-Shales in Scotland. R. Weed. A brief description of the oil-shale works and mines known as the Broxburn and the methods. 1500 w. Ir & Coal Trds Rev—Aug. 6, 1909. No. 7110 A.


A Sketch of the Geology of the Baku and European Oil Fields. Leonard V. Dalton. Describes only the regions which have contributed appreciably to the world's supply of petroleum—the Caucasus, Rumania, and Galicia. Maps. 7500 w. Ec-Geol—March, 1909. No. 3253 D.

The Oil Fields of Argentina. Brief account of a recent discovery and reference to previous discoveries. Map. 600 w. Engng—Oct. 30, 1908. No. 188 A.

The Petroleum-Bearing Zone of Northern Peru. V. F. Masters. The geology of the region and conclusions from the study are given in the present number. 2500 w. Min Jour—Nov. 21, 1908. Serial. 1st part. No. 735 A.


See also Natural Gas, under Minor Minerals; Formation, Illinois, and Texas, under Coal and Coke; Natural Resources, under Industrial Economy; Air Lift, under Mechanical Engineering, Hydraulic Machinery.

Pegmatites.

The Gem Bearing Pegmatites of Western Maine. W. Rogers Wade. History and description of the deposits where tourmaline, beryl, feldspar and mica are obtained. 4000 w. Eng & Min Jour—June 5, 1909. No. 5296.

Phosphate.


Phosphate Mining in Florida (L’Exploitation des Phosphates de la Floride). A general review of methods of mining and ore treatment, production, etc. Ills 2100 w. Génie Civil—Nov. 21, 1908. No. 1125 D.

Platinum.

MINING AND METALLURGY

Platinum


See also Production, under Gold and Silver.

Precious Stones

Gems and Precious Stones of Mexico. George F. Kunz. Information concerning their occurrence, and what is known of the different gems reported. 4500 w. Min Wild—July 3, 1909. No. 6139.

Production


Quicklime


Radium


Rare Elements

A Brief Statement of the Importance of the Rare Elements. Reviews the remarkable progress in the use of tungsten, vanadium, uranium, monazite, molybdenite and other rare minerals. 3000 w. Pro Am Min Cong—1908. No. 4136 N.

Rare Metals

The Rare Metals. I. Beryllium. Charles Baskerville. The present article considers some of the minerals of beryllium. 1000 w. Eng & Min Jour—Nov. 7, 1908. Serial, 1st part. No. 149.

The Occurrence of the Rare Metals in Peru. Eugen Weckwarth. Abstract translation. Cerium, germanium, lithium, molybdenum, rubidium, thalium, tellurium, titanium, thorium, tungsten, vanadium, and zirconia have been found. 1500 w. Min Jour—April 24, 1909. No. 4456 A.

Salt


Leaching Brine from Salt Mines (Solezerung durch Berieselung der Werksulme). Karl Schraml. Describes the methods used at Aussee, Austria. Ills.
MINING AND METALLURGY

Salt

MINOR MINERALS

3000 w. Oest Zeitschr f Berg- u Hüttenwesen—March 6, 1909. No. 4258 D.

Salt Deposits and Mining in German East Africa (Salzvorkommen und Salzgewinnung in Deutsch-Ostafrika). Herr Ernst. A brief review of the industry. 1800 w. Glückauf—Aug. 28, 1909. No. 7965 D.

Salt (Das Salz). A review of salt mining and production in all parts of the world. 7200 w. Glückauf—Sept. 18, 1909. No. 8665 D.

Slate.

Welsh Slate and the Penrhyn Quarry. Lionel C. Ball. Brief illustrated account of the methods at the largest slate quarry in the world. 3000 w. Queens Gov Min Jour—Jan. 15, 1909. No. 2503 B.

Sulphur.


Pyrites Mining in Scandinavia (Der skandanaivische Kiesbergbau). Herr Spackler. Describes the deposits and working of copper and iron pyrites, the production of copper and sulphur, etc. Ills. Serial. 1st part. 3500 w. Glückauf—Feb. 20, 1909. No. 3370 D.

See also Oil, under MINOR MINERALS.

Tantalu.

Tantalum and Its Industrial Applications. Alex. Siemens. Lecture at the Roy. Inst. Reviews the investigations of metallic filaments, and the experiments with tantalum, and many other ores showing its remarkable qualities. 3000 w. Nature—May 6, 1909. No. 4702 A.

Tantalum and Its Industrial Applications. Alexander Siemens. Read before the Roy. Inst. of Gt. Britain. Reviews the progress of electric lighting, dealing especially with tantalum, its use in this and other fields. 3500 w. Elec Engr, Lond—July 30, 1909. No. 6975 A.


Tellurium.


Tin.


The Assay of Tin Ore. L. Parry. A criticism of methods in common use, with a review of methods proposed and used, and a description of the gas reduction assay which is said to be the most accurate. 5000 w. Min Jour—Sept. 25, 1909. No. 8350 A.


Some Features of the Alaskan Tin Deposits. Adolph Knopf. Describes the mode of occurrence and the associated minerals, the geology, and mineralization. 3000 w. Ec Geol—April, 1909. No. 4670 D.

Tin Deposits of the Carolinas. S. Mays Ball. Describes the tin deposits and the extent to which they have been worked. 1200 w. Eng & Min Jour—June 5, 1909. No. 5301.


MINING AND METALLURGY

Tin

MINOR MINERALS

Tungsten

show that the popular idea of the origin of these deposits is erroneous, and that the majority of the deposits may be attributed to the same causes which have produced the other tin deposits of the world. Ills. 8000 w. Ec-Geol—June, 1909. No. 6743 D.

King of the Ranges Tin Mine, Watsonville, N. Q. Lionel C. Ball. Information in regard to the workings and the geology 4000 w. Queens Gov Min Jour—May 15, 1909. No. 5820 B.


See also same title, under Ore Dressing and Concentration; and Tasmania, under Gold and Silver.

Trass

The Genesis, Mining and Uses of Trass (Der Trass, seine Entstehung, Gewinnung und Bedeutung im Dienste der Technik). Herr Hambloch. Ills. 6600 w. Zeitschr d Ver Deutscher Ing—April 24, 1909. No. 5979 D.

Tripoli

Tripoli Deposits at Seneca, Missouri. Gaylord Nelson. Describes these deposits, discussing their origin, methods of mining, etc. 1500 w. Min Wid—Sept. 11, 1909. No. 7712.

Tungsten

Occurrence and Utilization of Tungsten Ores. A résumé of information available on this subject. 5500 w. Bul Imp Inst—Vol. VII. No. 2. Serial. 1st part. No. 8033 N.


Tungsten Ore Deposits of the Coeur d'Alene. Herbert S. Auerbach. Undevel-

Tungsten in Colorado. H. R. Wagenen. The Frenzel prize thesis. Discusses its occurrence, mill practice, production, etc., its physical properties, uses, mineralogy, chemistry and other topics. 13500 w. Qr of Colorado Sch of Mines—April, 1909. No. 4741 N.

The Determination of Tungstic-Acid in L.-w Grade Ores. Abstract of a paper describing the aqua regia method, aqua regia with previous treatment with hydrofluoric acid, and fusion with alkalies and subsequent determination with mercurous nitrate. 1500 w. Eng & Min Jour—June 5, 1909. No. 5302.

The Determination of Tungstic Acid in Low-Grade Wolfram Ores. H. W. Hutchin. Describes a new method, claiming advantages in time, accuracy, and general utility. 4000 w. Inst of Min & Met, Bul 56—May 13, 1909. No. 5500 N.


Turquoise.

Uranium.
Uranium Mining. Information concerning the mining of the ore and how radium is obtained from it. 1200 w. Sci Am Sup—March 6, 1909. No. 3578.


See also Vanadium, under MINERAL.

Vanadium.
Vanadium Deposits in Peru. D. Foster Hewett. Describes two districts where deposits of vanadium have been found and investigation of the nature of the deposits. Ills. 5500 w. Bul Am Inst of Min Engrs—March, 1909. No. 3472 P.


Uranium and Vanadium Metallurgy. Justin H. Haynes. History and description of the process used to separate the minerals from their ores. 2500 w. Mines & Min—Oct., 1909. No. 8255 C.

MINING

Accidents.

The Disasters at the Mount Morgan Mine, Queensland. The report of the Board of Inquiry, describing the mine and methods, recent accidents and their causes with recommendations. 7500 w. N Z Mines Rec—Feb. 16, 1909. No. 3885 B.

See also Law, under MINING.

Accounting.
Mining Accounts. Dwight B. Huntley. A lecture delivered before the Mining Assn. of the Univ. of Cal. on the keeping of mining accounts. 4500 w. Cal Jour of Tech—April, 1909. No. 4761.


Mine Accounting in the Ruhr District (Die im Ruhrbergbau üblichen Methoden.
MINING AND METALLURGY

Air Compression


Air Compression.

See same title, under MECHANICAL ENGINEERING, POWER AND TRANSMISSION.

Blasting.

Electric Shot-Firing in Coal Mines. D. Harrington. Discusses a system installed in Utah where all shots are fired from the surface after the workings are clear of men. Ills. 4000 w. Eng & Min Jour—Jan. 30, 1909. No. 2172.


Boring.

Churn Drills in Ely District. J. L. Dobins. Illustrates and describes the prospecting with these drills on the ground of the Nevada Consolidated Copper Co. 2200 w. Mines & Min—June, 1909. No. 5248 C.


See also same title, under CIVIL ENGINEERING, CONSTRUCTION.

Caving System.


MINING

Cananea Caving and Slicing Systems. R. L. Herrick. Describes the ore-bodies and methods of mining which have resulted in very low costs. Ills. 9800 w. Mines & Min—Aug., 1909. No. 6884 C.

Costs.

See same title, under COPPER.

Deep Level.


Development.

The Development of a Mine. Discusses points to be observed in development of a mine of payable ore. 3300 w. Aust Min Stand—Sept. 1, 1909. No. 8825.

Diamond Drilling.


See also Prospecting, under MINING.

Drainage.


Drilling.


Mechanically Operated Rock Drills with Special Reference to Tunnel Boring in the Alpine Tunnels (Ueber maschinell betriebene Gesteinsbohrungen mit be-
MINING AND METALLURGY

Drilling


See also Prospecting, under MINING.

Drills.


Selection and Use of Bits for Power Drills. M. de Gennes. Discusses the different types and the effect of size, shape, and cutting edge on the results. 1500 w. Eng & Min Jour—June 12, 1909. No. 5476.


Ways of Improving Piston and Hammer Drills. Eustace M. Weston. Discusses the comparative merits of hammer and piston drills, suggesting the use of heavier steel, a shorter and quicker stroke, better lubrication, etc. 4000 w. Eng & Min Jour—March 13, 1909. No. 3119.

Drill Sharpening.


Dry Houses.


Earth Pressures.

MINING AND METALLURGY

Electric Power

Electric Power.

The Installation of Electricity in Mines. W. A. Thomas. Deals with the manner of installation and operation of electric conductors and apparatus in underground workings. 3000 w. Pro Am Min Cong—1908. No. 4135 N.


The Direct-Current Motor in Mining Service. C. S. McGinnis. Considers troubles most likely to occur in practice and remedies which will dispose of the "inductive kick." Diagrams. 1500 w. Min Wid—March 27, 1909. No. 3544.


See also Exhibitions, Mine Regulations, and Quarrying, under Mining; Germany, under Copper; and Accumulators, and Central Stations, under ELECTRICAL ENGINEERING, GENERATING STATIONS.

Engineering Ethics

Professional Ethics. John Hays Hammond. The relation of the mining engineer to employers, to the public, and to personal interest. 3000 w. Bul Am Inst of Min Engrs—Nov., 1908. No. 690 C.

Exhibitions.

Manchester Electrical Exhibition. The first of a series of illustrated articles describing especially the exhibits dealing with mining and quarrying. 3000 w. Col Guard—Nov. 6, 1908. Serial, 1st part. No. 318 A.

Exploration.


Explosives.


See also same title, under COAL AND COKE; Mine Gas, under MINING; and Explosives, under RAILWAY ENGINEERING, TRAFFIC.

Finance.

Gas Power


Geological Records.


Gravity Planes.

Self-Acting Top for Gravity Plane. H. McKean Conner. Illustrated description of a device by which cars may be delivered and received on tracks of different grades. 800 w. Mines & Min—Sept., 1909. No. 7494 C.

Haulage.


Haulage with Compressed-Air Locomotives in the Eno Mine of the Cologne Mining Company (Die Druckluft-Lokomotivförderung unter Tage auf den Em-scherschächten des Kölner Bergwerks-Vereins). D. Winkhaus. Describes the equipment and methods and gives costs of operation and maintenance. Ills. 2500 w. Glückauf—Nov. 28, 1908. No. 1154 D.

Electrically Operated Slag Railway of the Alpine Mining Company, Donawitz, Austria (Elektrisch betriebener Haldenaufzug der österreichischen Alpinen Montangesellschaft in Donawitz). Illustrated description of this electrically operated rope-haulage plant. 1500 w. Oest Zeitschr f Berg-u Hüttenwesen—Dec. 12, 1908. No. 1948 D.

See also Electric Power, under Coal and Coke; and Coal Handling, and Ore Handling, under MECHANICAL ENGINEERING, TRANSPORTING AND CONVEYING.

Head Frames.


Design and Construction of Head Frames (Calcul et Construction des Cages d’Extraction). N. Dessart. Discusses a number of types. Ills. 10000 w. All Indus—Sept., 1909. No. 8620 D.

Hoisting.


Counterbalanced Hoisting. R. L. Herrick. Illustrates and describes ingenious devices used in Colorado mines which result in economy of power. 3300 w. Mines & Min—May, 1909. No. 4477 C.

Friction Drums and Brakes. Warren O. Rogers. Illustrates and describes types of these devices as used in hoisting-engine practice, showing how they are constructed and applied. 1500 w. Power—Oct. 26, 1909. No. 8772.


MINING AND METALLURGY

Hoisting


See also Head Frames, under MINING.

Hoisting Engines.


An Electrically Operated Hoisting Plant. A. Gradewitz. Illustrated description of a scheme devised to eliminate the fly-wheel converter. 1500 w. Eng & Min Jour—July 10, 1909. No. 6251.

A Twin Tandem-Compound Drop-Valve Winding Engine. Illustrated description of engine built in Germany. 1200 w. Engr, Lond—Dec. 11, 1908. No. 1222 A.


MINING


See also Machinery, under MINING.

Hoisting Ropes.


Hydraulic Filling.

See same title, under CIVIL ENGINEERING, CONSTRUCTION.

Hydraulic Mining.

See same title, under GOLD AND SILVER.

Labor.

Arbitration as a Factor in the Mining Industry. Two papers on this subject by Judge George Gray, and by Thomas L. Lewis. 3000 w. Pro Am Min Cong—1908. No. 4138 N.

The Importance of Arbitration as a Factor in the Advancement of the Mining Industry. Hon. Carroll D. Wright. Shows the benefits of this method of adjusting difficulties. 1800 w. Pro Am Min Cong—1908. No. 4120 N.

Labor Efficiency in Mining Operations. Peter B. Scotland. Discusses some of the factors that contribute toward efficiency. 1200 w. Eng & Min Jour—Sept. 11, 1909. No. 7685.
MINING AND METALLURGY

Labor


The Kaffir Mine Laborer. Thomas Lane Carter. An account of conditions in South Africa, the mental and physical capabilities of the natives, their customs and their economic value as laborers. Illus. 1980 w. Bul Am Inst of Min Engrs—Nov., 1908. No. 681 C.


See also Mexico, under MISCELLANY.

Law

Prevention of Mine Accidents. Investigations made by a committee appointed by the Am. Min. Cong. shows that only four states have comprehensive laws regulating metalliferous mining. 13000 w. Eng & Min Jour—Dec. 5, 1908. No. 913.


Leasing


Leasing System

See Law, under MINING.

Locomotives

Compressed Air Mine Locomotives. Illustrated description of a locomotive introduced by the Berliner Maschinenbau-Actiengesellschaft, to be driven by compressed air. 700 w. Ir & Coal Trds Rev—Dec. 4, 1908. No. 1027 A.

See also Haulage, under MINING.

Machinery


Lowering a Large Pump into a Mine. George J. Young. Illustrated description of method employed at the Ward shaft, Virginia City, Nevada. 800 w. Eng & Min Jour—April 17, 1909. No. 4008.

Management


Methods

Modern Progress in Mining and Metallurgy in the Western United States. David W. Brunton. Presidential address giving an outline of recent improvements and the present situation. 7000 w. Bul Am Inst of Min Engrs—Sept., 1909. No. 8196 F.


Mine Cars


Mine Dams

Protection of the Vereinigte Engelburg Colliery against the Rising Water in the Idle Vereinigte Maria Anna and Steinbank Colliery (Die Sicherung der Zeche Vereinigte Engelsburg gegen die hoch-
MINING AND METALLURGY

Mine Examination


Mine Gas


Mine Inspection


Mine Lighting


Mine Maps


Mine Regulation

Electricity Rules in New South Wales Mines. Gives text of special rules established in most of the large collieries where electrical installations exist. 7000 w. Ir & Coal Trds Rev—Sept. 3, 1909. No. 7761 A.

Mine Reports


Miners' Clubs


Mine Sampling


See also Prospecting, under MINING.

Mine Surveying


Mine Temperature


Mine Valuation


See also Mine Sampling, under MINING.

Mine Waters

Methods Used in Sealing Off Underground Water. Edmund B. Kirby. Meth-
MINE WATERS

Mineral waters are used for a variety of purposes, including medicinal and recreational uses. The article discusses the characteristics and benefits of different types of mineral waters.

ORE BINS


ORE HANDLING


See also same title, under MECHANICAL ENGINEERING, TRANSPORTING AND CONVEYING.

PANEL SYSTEM


PATENTING


POWER PLANTS

See Gas Engines, under MECHANICAL ENGINEERING, COMBUSTION MOTORS.
Pumps

for depths up to 2000 ft. vertical, in terms of the diameter, and of transmission losses. 1500 w. Jour S African Assn of Engrs—May, 1909. No. 6025 F.

Pumps.


Quarries.


Quarrying.


See also Coal Cutting, under Coal and Coke; and Slate, under Minor Minerals.

Recording Apparatus.


Records.


Shaft Sinking

Safety.

On the Relation of Safety to Economy in Mining. Malcolm Ferguson. Deals especially with the importance of careful supervision for both efficiency and safety. Discussion. 4000 w. Jour S. African Assn of Engrs—May, 1909. No. 6024 F.

Shaft Lining.


Shafts.


See also Timbering, under Mining.

Shaft Sinking.

Modern Shaft Sinking. Francis Donaldson. Discusses features of contracts for such work, supplies and machinery needed. 3200 w. Mines & Min—April, 1909. No. 3671 C.


Sinking a Reinforced Concrete Mine Shaft. Albert H. Fay. Illustrated account
Shaft Sinking

of work at the Morton Mine, Minnesotta, where a circular shaft, 21 ft. in diameter, was sunk through 150 ft. of water-bearing strata. 1500 w. Eng & Min Jour—Sept. 15, 1909. No. 8073.

Sinking the Concrete-Lined No. VI Shaft at the Rhein-Elbe Mine (Das Abteufens des Schachtes Rhein-Elbe VI mit Eisenbetonausbau in Steinkohlengruben). Herr Kaufmann. Illustrated description of the work. 4000 w. Glückauf—May 1, 1909. No. 5757 D.


A Difficult Shaft Sinking Operation at Durwood, Minn. An account of methods used. 1000 w. Ir Trd Rev—Nov. 5, 1908. No. 108.


Shaft Tubbing.

Tubbing for Modern Collieries. J. S. Barnes. Discusses the scientific design of tubbing. Diagrams. 3000 w. Engr, Lond—Oct. 23, 1908. No. 79 A.

Signalling.


Skips.


Stoping

"Shrinkage" Stoping in Western Australia. F. Percy Rolfe. Describes this method of stoping used at the Lake View Consol Gold Mine, discussing its advantages and disadvantages. Ills. 4000 w. Inst of Min & Met, Bul. 53—Feb. 11, 1909. No. 3160 N.

Subsidence.

The Law of Subsidence. Discusses British law and recent decisions. 1500 w. Col Guard—Nov. 13, 1908. No. 440 A.

Surveying

A Few Suggestions on How to Survey a Mine. Charles W. Helmick. Briefly considers three methods, explaining the determination of a meridian, etc. 1500 w. Min Wld—Oct. 31, 1908. No. 39.


MINING AND METALLURGY

Surveying


Timber Drawing


Timbering


The Use of Concrete for Mine Supports. W. R. Crane. Paper read before the Institution of mining engineers. Discusses its profitable use in mining, costs, methods, etc. Ills. 6000 w. Ir & Coal Trds Rev—May 28, 1909. No. 5454 A.

MINING


Reinforced Concrete Shaft Linings (Die Bedeutung des Eisenbetons für den Schachtausbau). Dr. Färber. Mathematical discussion of their strength and design with notes on their cost. Ills. 1700 w. Glückauf—March 13, 1909. No. 4263 D.

Some Recent Applications of Concrete in Mining (Einige neuere Betonierungsverfahren und ihre Anwendungsgebiete im Bergbau). R. Scharf. Describes several applications in tunnel and shaft lining. Ills. 1800 w. Glückauf—March 27, 1909. No. 4265 D.


See also Mining, under Coal and Coke.

Tunneling

Timber Preservation.

See same title, under CIVIL ENGINEERING, CONSTRUCTION.

Tonnage Computation


Transportation


Tributing


Tunneling

See Tunneling Machines, under CIVIL ENGINEERING, CONSTRUCTION.
Tunnel Lining

ORE DRESSING AND CONCENTRATION

Bul Am Inst of Min Engrs—Feb., 1909. No. 2750 C.


See also Mine Ventilation, under Coal and Coke.

Welfare Work.


Wire Ropes.

Cross-Laid Double-Layer Wire Ropes. An account of experiments recently made with such ropes, and some serious objections to their use. 800 w. Engr, Lond—Jan. 15, 1909. No. 2082 A.


See also same title, under Mechanical Engineering, Materials of Construction.

ORE DRESSING AND CONCENTRATION

Briquetting.


Calculations.


Classification.


Classification of Ores at the Butte Reduction Works. A. H. Wethey. Describes the use of the Pratt centrifugal screen for sizing without regard to specific gravity. 1500 w. Mines & Min—Jan., 1909. No. 1413 C.


Classifiers.

The Richards Pulsator Jig and Pulsator Classifier. Frank E. Shepard. Read be-
Copper

The Boston Consolidated Mill at Garfield, Utah. Leroy A. Palmer. Illustrates and describes the large mill built to treat sulphides with gold and silver values amounting to only 20 cts. per ton. The property can produce 50,000,000 lb. of copper annually with the estimated tonnage and values. 3500 w. Min. Wd—Jan. 12, 1909. No. 1443.

The Ohio Concentrator. Leroy A. Palmer. A description of the mill at Bingham, Utah, which will have a capacity of 2250 tons per day. 2500 w. Mines & Min.—June, 1909. No. 5245 C.

Crushers.


See also same title, under MECHANICAL ENGINEERING, MACHINE ELEMENTS AND DESIGN.

Crushing.


See also Gold Milling, under ORE DRESSING AND CONCENTRATION.

Drying.


Elmore Process.


Evaporators.

Vacuum Slime-Filters at Goldfield.Albert describes the vacuum apparatus, presenting its advantages. 1400 w. Elec Chem & Met Ind—May, 1909. No. 4599 C.

Filtration.


Flotation Process.


Gold Milling.


MILLING AND METALLURGY

Gold Milling

Ore Dressing and Concentration

Lead Milling


Description of Ore Treatment at the Giant Mine, Hartley District, Rhodesia. Reginald C. H. Cooke. Describes the process of extraction used for a heavily mineralized chloride schist, intermixed with ironstone and quartz. 2500 w. Jour Chem, Met. & Min Soc of S Africa—Nov., 1908. No. 1802 E.


See also Amalgamation, Australia, Colorado, Cyaniding, Nevada, and Rhodesia; under Gold and Silver; and Foundations, under Civil Engineering, Construction.

Graphite.


Concentration of Flake Graphite. Frederick D. Chester. Discusses the concentration of the ore, and the conditions that determine profitable production. 1000 w. Eng & Min Jour—Oct. 23, 1909. No. 8729.

Grinding.

The Computation of Crushing Efficiency of Fine Grinding Machines. H. Stadler. A study, giving tables and calculations, and emphasizing the importance of care in making grading analyses. 3000 w. Jour S African Assn of Engrs—Dec., 1908. No. 2047 F.

Iron.


Iron Ores.

See Magnetic Concentration, under Ore Dressing and Concentration.

Jig.


See also Washing, under Coal and Coke; and Classifiers, under Ore Dressing and Concentration.

Launders.

The Carrying Capacity of Launders. W. C. Browning. Gives results of experiments at the Utah State School of Mines, with launders of glass, wood and linoleum at different grades. 1700 w. Mines & Min—Feb., 1909. No. 2230 C.

Lead Milling.

MINING AND METALLURGY

Lead Milling

ORE DRESSING AND CONCENTRATION

Roasting


See also France and Oklahoma, under LEAD AND ZINC.

Magnetic Concentration.


See also Tungsten, under ORE DRESSING AND CONCENTRATION.

Magnetic Separation.

See Magnetic Separators, under MECHANICAL ENGINEERING, MACHINE WORKS AND FOUNDRIES; and Monazite, under MINOR MINERALS.

Mill Management.

See Management, under MINING.

Mill Tests.

See Assaying, under GOLD AND SILVER.

Mixed Sulphides.

The I. R. Process in Cornwall. Describes this process, its advantages, and the results obtained with complex sulphides. 1400 w. Min Jour—July 17, 1909. No. 6662 A.


Ore Dressing.


Pneumatic Concentration.

See Salt, under MINOR MINERALS.

Roasting.

Some Developments of Blast Roasting. H. O. Hofman. Describes the up-draft
Sampling and downdraft roasting apparatus used for these processes. 2200 w. Min Jour—June 12, 1909. No. 5631 A.

See also Calcium Sulphate, under Miscellaneous.

Sampling.


The Projected Custom Sampling Plant—To Be Erected This Year in Cobalt, Ont. Explains the province of the sampling company, and shows the layout and process of the proposed works. 1500 w. Can Min Jour—Oct. 1, 1909. No. 8372.

Screening.

See same title, under Coal and Coke.

Silver Milling.


Metallurgical Practice at Hacienda de la Union. Francisco Narvaez. Illustrated description of the present system of treatment at Pachuca, Mexico. 3000 w. Eng & Min Jour—Nov. 21, 1908. No. 406.


See also Cyaniding, and Mexico, under Gold and Silver.

Sizing.


Slimes Treatment.


See also Vanners, under Ore Dressing and Concentration; and Cyaniding, under Gold and Silver.

Stamp Mills.


The Development of Heavy Gravitation Stamps. W. A. Caldecott. An illustrated discussion of the development and of some of the factors affecting present-day stamp-milling, showing the advantages of heavy stamps. 4000 w. Inst of Min & Met, Bul. No. 59—Aug. 12, 1909. No. 7784 N.

Some Notes on the Gravitation Stamp Mill. R. C. Robinson. Describes the general design and construction and some details. 4000 w. Queens Gov Min Jour—Oct. 15, 1908. No. 460 B.
Stamp Mills
Graphical Determination of the Form of Stamp Cams (Zeichnerische Ermittlung der Gestalt von Aufwerfdaumen). M. Herrmann. Illustrated description of method. 1500 w. Zeitschr d Oest Ing u Arch Ver—March 26, 1909. No. 4281 D.
Tailings
Tailings Disposal.
Tin.
Notes on Tin Dressing. H. W. Hutchin. An account of a series of tests whose object was to determine the losses in connection with tin dressing. IIs. 4500 w. Inst of Min & Met, Bul. No. 50—Nov. 12, 1908. No. 892 N.
Tube Mills.
Tungsten.
The Separation of Tungsten Minerals.

Henry E. Wood. Abstract of paper read before the Colo. Sci. Soc. Considers wet concentration and magnetic separation, favoring the latter where it is possible to use it. 1500 w. Min Wild—May 22, 1909. No. 4935.
Vannera.
The Treatment of Slime on Vannera. Rodolf Gahl. A report of tests made by the Detroit Copper Mining Co. to determine whether it would pay to retreat slime-tailings. 5500 w. Bul Am Inst of Min Engrs—Sept., 1909. No. 8193 F.
Wisleys Tables.
Experimental Work in Ore Concentration. John Allen Davis. Reports investigations made to determine the conditions of greatest efficiency in concentrating a classified product on tables. 1800 w. Eng & Min Jour—Nov. 7, 1908. No. 143.
Zinc Milling.
Improvements at the Oronogo Circle Mill No. 5. Otto Ruhl. Illustrates and describes equipment for setting and treating fine material. 1800 w. Eng & Min Jour—Nov. 21, 1908. No. 407.
See also Lead Milling, under Ore Dressing and Concentration.

Alaska.
Alaska and Its Mineral Resources. Alfred H. Brooks. Information concerning the mineral resources and their development, transportation, etc. 4000 w. Pro Am Min Cong—1908. No. 4143 N.
Algeria.
The Mining Industry in Algeria and Tunisia. M. Cérè. An account of the mining of iron, lead, zinc, and phosphates,
Alloys

and matters affecting the industry. 3500 w. Eng. & Min Jour—Sept. 4, 1909. No. 7557.

Alloys.

The Alloys of Nickel (Les Alliages de Nickel). A. Portevin. Summary of Prof. Tammann’s researches on alloys of nickel with bismuth, cadmium, cobalt, chromium, antimony, silicon, tin, lead, thallium and zinc. IIs. 4000 w. Rev. de Métal—Nov., 1908. No. 1108 E + F.

The Alloys of Lead (Les Alliages de Plomb). A. Portevin. Summarizes the results of Prof. Tammann’s researches on alloys of lead with calcium, cobalt, chromium, indium, potassium, sodium, palladium, platinum, antimony, thallium, etc. IIs. 3500 w. Rev. de Métal—Dec., 1908. No. 1911 E + F.

The Alloys of Manganese (Les Alliages de Manganèse). A. Portevin. Summarizes the results of Prof. Tammann’s researches on the alloys of manganese with nickel, lead, phosphorus, antimony, silicon, and tin. Also alloys of magnesium with bismuth, cadmium, potassium, sodium, nickel, lead, antimony, tin, thallium, and zinc. IIs. 500 w. Rev. de Métal—Oct., 1908. No. 516 E + F.

The Silicon-Magnesium Series (Sur le Système Silicium-Magnésium). P. Lebeau and P. Bossuet. A metallurgical study of the alloys of these two metals. IIs. 1800 w. Rev. de Métal—March, 1909. No. 4212 E + F.


The Alloys of Antimony (Les Alliages d’Antimoine). M. A. Portevin. Summarizes the results of Prof. Tammann’s researches on the alloys of antimony with bismuth, calcium, cadmium, cobalt, chromium, iron, etc. IIs. 6000 w. Rev. de Métal—Feb., 1909. No. 3308 E + F.


The Alloys of Silicon, Tin and Zinc (Les Alliages de Silicium). M. A. Portevin. Summarizes the results of Prof. Tammann’s researches on alloys of silicon with aluminium, bismuth, calcium, cobalt, magnesium, lead, tin and thallium; of tin with calcium, cobalt, chromium, potassium, sodium and platinum; and of zinc with various metals. IIs. 8000 w. Rev de Métal—Sept., 1909. No. 8607 E + F.

America.


Applied Chemistry.


Arizona.

Mining and Mineral Resources of Arizona. Frank Cox. 1500 w. Pro Am Min Cong—1908. No. 4127 N.

Arkansas.

Mineral Resources of Arkansas. A. W. Estes. Brief account of deposits of zinc, lead, coal, baudexite, marble, granite, and other minerals of value. 3000 w. Pro Am Min Cong—1908. No. 4129 N.

Atomic Theory.


Atomic Weights.

An Outline of a New Practical Method for the Calculation of Atomic Weights. Dr. Gustavus D. Hinrichs. Claims that the official atomic weights of the Am. Chem. Soc. are not true to nature, and outlines the author's theory. Also editorial. 4000 w. Elec-Chem & Met Ind—July, 1909. No. 6194 C.
MINING AND METALLURGY

Australia.


Austria.


Bolivia.


British Columbia.

Mining in British Columbia. A general review of the industry. Ills. 9000 w. B C Min Rec—Aug., 1908. No. 82 B.

Mineral Production of British Columbia in 1908. E. Jacobs. Reports a decrease of over $2,000,000 in total value, with an increase in lode gold, copper, silver and zinc. 5000 w. Eng & Min Jour—Jan. 30, 1909. No. 2173.


 Calcium Sulphate.

The Behavior of Calcium Sulphate at Elevated Temperatures with Some Fluxes. H. O. Hofman and W. Mostowitsch. An account of an investigation to study the behavior of gypsum when exposed to elevated temperatures, both alone and in the presence of fluxes. 7300 w. Bul Am Inst of Min Engrs—Jan., 1909. No. 2423 F.


California.


Canada.


The Taxation of Mineral Resources in Canada. O. D. Skelton. Reviews the measures adopted, with comments. 3500 w. Can Min Jour—Nov. 1, 1908. No. 44.

A Visit to the Mineral Districts of Canada. William Frecheville and Hugh F. Marriott. Notes on an excursion organized by the Canadian Mining Institute, describing the districts visited. 1000 w. Inst of Min & Met, Bul. 51—Dec. 10, 1908. No. 1340 N.

Notes on Plant in the Mining Districts of Canada. R. E. Commans. A general idea of the plant at mines visited during the excursion organized by the Canadian Institute. 7000 w. Inst of Min & Met, Bul. 51—Dec. 10, 1908. No. 1341 N.


Charcoal Furnaces.


China.


Colombia.

Economic Conditions in Colombia. F.
MINING AND METALLURGY

Colorado


The Mines of Colombia. Notes on a recent report of Mr. Stronge, the British Minister at Bogata, on the mines and minerals. 1600 w. Engr, Lond—July 23, 1909. No. 6858 A.

Colorado


Crystallography


Earthquakes

Geological Fractures in the Calabria-Sicily Region (Fratture geologiche della Regione Calabro Sicula). E. Cortese. Discusses the geological structure with reference to the recent earthquakes. Ills. 6500 w. Ann d Soc d Ing e d Arch Ital—March 1, 1909. No. 4241 F.

England

Presidential Address of James Charles Inglis. Deals principally with transport and the relation of engineering. Specially reviewing the railway conditions of the United Kingdom. Appendices. 11500 w. Inst of Civ Engrs—Nov. 3, 1908. No 6446 N.

Exposition


Jamaica

Fissures.


Geological Survey.


Geology


German East Africa.


Great Britain


Greece


Haiti

The Mineral Resources of Haiti, West Indies. Edw. G. W. Ferguson. Reviews the early history to explain the slow development of this island, and gives brief descriptions of the known deposits. 4000 w. Min Wld—July 10, 1909. No. 6263.

Idaho Claims.


The Paralysis of Mining Districts and a Remedy. Edmund B. Kirby. Read before the Am. Min. Cong. Urges the increase of taxation until every claim must be worked or opened to prospectors. 2500 w. Min Wld—Oct. 16, 1909. No. 8714.

Jamaica

Mineral Deposits of Jamaica in West Indies. Francis C. Nicholas. Nearly all
Japan

the common minerals are found. Ocher and clay give promise of becoming important. 2000 w. Min Wld—Dec. 12, 1908. No. 1034.

Japan.

The Mining Industry in the Hokkaido, Japan. Report of British Vice-Consul Parlett, giving information of mines, conditions, wages, etc. 2500 w. Min Jour—April 10, 1909. No. 4032 A.

Korea.

Mining in Korea. Abstract of a consular report by Mr. Sammons. Considers the mining laws and regulations, and the gold mines and placers in the present article. 2500 w. Min Jour—May 15, 1909. Serial. 1st part. No. 4957 A.

Land Classification.


Metal Production.


Mexican Law.

The Proposed New Mining Law of Mexico. Richard E. Chism. Discusses the provisions of a new law which is to govern mining titles and mines. 4000 w. Eng & Min Jour—July 31, 1909. No. 6792.

Mexico.

A Brief Review of the Mining Industry of Mexico. Ezequiel Ordóñez. An account of mining conditions. 4000 w. Ec-Geol—Dec., 1908. No. 1875 D.

Physical and Geological Features of Mexico Mining. Ezequiel Ordóñez. Description, with explanation of the six types of ore deposits that include the great producers of gold, silver, copper, lead, zinc, antimony and tin. 1500 w. Min Wld—July 3, 1909. No. 6138.


A Classification of the Ore Deposits of Mexico. Ezequiel Ordóñez. Briefly describes the mountain systems and the principal ore deposits. 1600 w. Min Jour—March 20, 1909. No. 3611 A.


Mineralogy.


Mineral Springs.


The Eruption of the Waimata Mud Springs. James Henry Adams. Describes the location and discusses the probable origin of the springs. 3 maps. 2800 w. N Z Mines Rec—Oct. 16, 1908. No. 1000 B.

Nevada.


Newfoundland.


New York.


New Zealand.


New Zealand as a Mining Country. James Mackintosh Bell. Map and illustrated discussion of the possibilities, reviewing important mines. 4000 w. Aust Min Stand—Nov. 25, 1908. No. 1687 B.

Nova Scotia.

The Minerals of Nova Scotia During 1908. A. S. Barnstead. A review of the production of coal, gold, iron, gypsum,
MINING AND METALLURGY

Ore Deposits


Ore Deposits.

A Genetic Classification of Minerals. William H. Emmons. Indicates briefly the principal conditions under which the most important minerals are formed, giving tables and explanatory notes. 4500 w. Ec-Geol—Oct.—Nov., 1908. No. 482 D.

The Formation and Enrichment of Ore-Bearing Veins. George J. Banroft. Supplementary to a paper read April, 1907, giving results of further study. 3300 w. Bull Am Inst of Min Engrs—July, 1909. No. 6473 F.


A Theory of Volcanic Action and Ore Deposits. Their Name and Cause. Hiram W. Hixon. The basis of the theory is that the earth was at one time an incandescent sun. Applies the law of diffusion of gases. 5000 w. Inst of Min & Met, Bull 52—Jan. 14, 1909. No. 2427 N.


Ores Formed by Magmatic Segregation. F. Lynwood Garrison. Reviews the theories advanced in regard to ore deposits, especially considering iron ores and studying the process of magmatic segregation in meteorites. 6000 w. Min & Sci Pr—March 27, 1909. No. 3678.


Garnet Contact Deposits of Copper and the Depths at Which They Are Formed. Charles R. Keyes. A study of the conditions producing garnetization. Ills. 2500 w. Ec-Geol—June, 1909. No. 6744 D.


An Instance of Secondary Impoverishment. Henry Hobart Knox. Describes an occurrence of unoxidized iron sulphides which have been leached of their copper contents. 3500 w. Inst of Min & Met, Bull 52—Jan. 14, 1909. No. 2428 N.


The Relation of Copper to Pyrite in the Lean Copper Ores of Butte. James F. Simpson. Gives results of investiga-
Ore Deposits


Ozark Lead and Zinc Deposits: Their Genesis, Location, and Migration. Charles R. Keyes. Outlines the principal hypotheses advanced to explain their origin, the geology of the formations, geographic distribution, and a study in general of the salient features. Ills. 14/00 w. Bull Am Inst of Min Engrs—Feb., 1909. No. 2748 D.

The Lead-Silver Deposits at Newburyport, Massachusetts, and Their Accompanying Contact-Zones. C. H. Claff and W. G. Ball. Gives the history, topography, general geology, describing ore deposits and their origin. 3800 w. Ec-Geol—April, 1909. No. 4672 D.


Features of a Vein Formation in Nicaragua. H. E. West. Describes the vein system and ore bodies which apparently are the results of the fracture and decomposition of effusive rocks. Ills. 3000 w. Eng & Min Jour—June 5, 1909. No. 5297.

The Localization of Values in Ore Bodies and the Occurrence of Shoots in Metalliferous Deposits. Hjalmar Sigren. Notes concerning the Scandinavian copper and lead-silver mines. 2500 w. Ec-Geol—Oct., 1908. No. 484 D.

See also Lake Superior, under Capper; Nevada, and Rand, under Gold and Silver; Tin, Tungsten, and Asbestos, under Minor Minerals.

Ores.


Papa.

Mining District, Port Moresby, Papua. P. N. Charpentier. Deals with the geological features and the purchase of ore. 2600 w. Aust Min Stand—March 3, 1909. No. 3882 B.

Peru.

The Mineral Features of Tayacaja, Ancaraes, and Huanacavelica, Peru. Enrique J. Dueñas. The present article describes the province of Tayacaja. 2500 w. Min Jour—March 27, 1909. Serial. 1st part. No. 3785 A.

Porto Rico.


Refractory Materials.


Respirators.


Review of 1908.


Review of Mining in the United States in 1908. The various mining districts are reviewed by different authors. 86000 w. Min Wd—Jan. 30, 1909. No. 2185.
MINING AND METALLURGY

Review of 1908

Profits of American Mines in 1908. Editorial, showing that in spite of adverse conditions the sum of $51,581,092 was paid to shareholders. Also progress and improvements during the year. 4000 w. Min Wild—Jan. 30, 1909. No. 2184.

Review of Mining in Foreign Countries. Reviews the developments of the past year in the Transvaal, Peru, Chile, Colombia, Mexico, Ontario and Australia. 17000 w. Eng & Min Jour—Jan. 9, 1909. No. 1586.

The Mining Market in 1908. Briefly reviews the general characteristics of the year and the course of the market. 3000 w. Min Jour—Jan. 2, 1909. Serial 1st part. No. 1702 A.

The Metals in 1908. A review of the past year in connection with the markets. Copper and tin are considered in this number. 4000 w. Min Jour—Jan. 23, 1909. Serial, 1st part. No. 2215 A.

South America.

A Review of Mining in Latin America. 2500 w. Min Jour—Sept. 4, 1909. No. 7740 A.

South Carolina.


Santo Domingo.

Some Investigations of Santo Domingo Minerals. C. W. Kempton. Illustrated article describing the topography, climate, and features of the island, and reporting the results of several of the island's explorations. Gold, lead, copper, and iron ore were found. 1000 w. Min Wild—March 27, 1909. No. 3746.

Sulphuric Acid.


Transportation.

Transportation in Its Relation to the Mining Industry. Dr. James Douglas. Discusses the interdependence of the transportation and mining industries, and the intense activity that is using up the natural resources of the country. 4500 w. Pro Am Min Cong—1908. No. 4123 N.

Transportation of Mineral Products. Edward H. Harriman. Shows the importance of mine products as a factor in transportation, discussing their relation to the railroads, and related subjects. 5000 w. Pro Am Min Cong—1908. No. 4119 N.


Turkey.


United States.


The Federal Government in Its Relation to the Mining Industry. Hon. James Rudolph Garfield. Reviews what the government has done and proposes to do in work connected with the mining industry. 3500 w. Pro Am Min Cong—1908. No. 4124 N.

The Duties of the Federal and State Governments in Relation to the Mining Industry. W. F. Engebright. Remarks favoring the establishment of a mining bureau. 1200 w. Pro Am Min Cong—1908. No. 4142 N.

The Duties of the Federal and State Governments in Relation to the Mining Industry. Geo. H. Harrison. Recommends the establishment of a National Bureau of Mines, to investigate mining conditions and secure information pertaining to safe and economic mining. 3000 w. Pro Am Min Cong—1908. No. 4121 N.


How It Strikes an American. T. Lane Carter. A comparison of mining conditions in America and South Africa.
MINING AND METALLURGY

U. S. Geological Survey


See also Natural Resources, under INDUSTRIAL ECONOMY.


Utah.


Virginia.

The Mineral Resources of Virginia. E. A. Schubert. A general discussion of their economic value. 8500 w. Pro Am Min Cong—1908. No. 4128 N.
RAILWAY ENGINEERING

CONDUCTING TRANSPORTATION... 416
MOTIVE POWER AND EQUIPMENT. 420
NEW PROJECTS............ 438

PERMANENT WAY AND BUILDINGS 439
TRAFFIC ......................... 448
MISCELLANY ................... 450

Accidents

Communication.

American Railway Accidents.  Gives statistics for the years 1907 and 1908, and quotes comments of Interstate Commerce Commission. 1500 w. Engr, Lond—June 18, 1909. No. 6049 A.


The Safety of British Railways.  Reviews the accident records for various years and Acts passed that have a bearing on the safety of railways. 1600 w. Engr, Lond—Jan. 8, 1909. No. 1825 A.

The Crawford Derailment.  Discusses this accident and also Colonel Yorke's report upon it. 1500 w. Engr, Lond—July 2, 1909. No. 6310 A.

Automatic Stoops.

See Signalling, under CONDUCTING TRANSPORTATION.

Signalling

Dispatching.

The Train Despatcher's Status.  J. F. Mackie.  From a paper read at Columbus meeting of the Train Des. Assn. Brief review of the development of the service with the increase in traffic. 1500 w. R R Age Gaz—July 16, 1909. No. 6380.


Railway Signaling.  James B. Latimer.  An elementary explanation of the uses of
Signalling

CONDUCTING TRANSPORTATION.

the various signals, the principles of the track circuit, etc. 2500 w. Sig Engr—Feb., 1909. Serial, 1st part. No. 2540.


Systematic Signaling. C. C. Anthony. Discusses the standard codes of block signals and interlocking rules, and the proposals submitted by the Signal and Maintenance of Way Assns. 5000 w. R.


Controlled Manual Block Signaling. A. D. Cloud. Describes this system as used on some of the western roads. 3000 w. Sig Engr—Nov., 1908. No. 281.


Railway Signalling in Holland, Belgium, Switzerland, and Italy (Notes sur la Signalisation des Chemins de Fer—Hollande, Belgique, Suisse, Italie). Ed. Epinay. An exhaustive review of signal practice in these countries. Iills. 34000 w. Ann d Ponts et Chauss—1908 II. No. 2066 E + F.

RAILWAY ENGINEERING

Signalling


Wire Transmissions Laid in Pipes Filled with Oil for Operating Switches and Signals. L. Dufour. Describes this system of construction as installed at Grypskerk station, Holland. IIs. 1300 w. Bul Int Ry Cong—Nov., 1908. No. 897 G.


The Latest System of Power Railway Signalling. Illustrations and brief description of an all electric plant at Yarmouth, near Oxford, on the Gt. Western Ry. 500 w. Engr, Lond.—Aug. 27, 1909. No. 7663 A.


Some Applications of Electricity in Railway Service (Quelques Applications de l’Electricité au Service des Chemins de Fer). J. A. Montpellier. Describes various signalling devices. IIs. 5200 w. Elecn—March 27, 1909. No. 4226 D.


Safety Appliances on the Java Railways (Dutch Indies). L. Dufour. Describes the appliances adapted for interlocking the signals and switches on lines carrying but little traffic. IIs. 2200 w. Bul Int Ry Cong—Oct., 1908. No. 169 G.


Track Circuit Signals Without Insulated Joints. Describes this system which has been in use on the Long Island Railroad for six months. IIs. 1200 w. R R Age Gaz—Feb. 12, 1909. No. 2472.


Automatic Signals Near Washington, Baltimore & Ohio Railroad. Illustrates and describes this section, where the lighting of the signals is done automatically. 1600 w. Eng Rec—Aug. 7, 1909. No. 6554.

Washington Station Signal System. Brief illustrated description of the upper quadrant or three-position signal system.
RAILWAY ENGINEERING

Signalling

CONDUCTING TRANSPORTATION.  Train Dispatching

installed.  1500 w.  Ry & Loc Engng—April, 1909.  No. 3656 C.

New Signals at Providence.  Describes the changes in track layout, and interesting features of the signal system.  Ills.  2200 w.  R R Age Gaz—Oct. 8, 1909.  No. 8449.

All-Electric Interlocking at Allentown.  Illustrated description of this plant.  700 w.  R R Age Gaz—June 18, 1909.  No. 5613.


Electric Train Staff on the Southern Pacific.  An account of this system and its operation.  2500 w.  R R Age Gaz—May 21, 1909.  No. 4000.


Movement of Trains on Single Track Without Train Orders.  Synopsis of paper by George S. Pflasterer, read before the Nashville Assn. of R. R. Officers.  Describes the main features of a successful system in operation between Wauhatchie and Chattanooga, in service 21 years.  1500 w.  Sig Engr—April, 1909.  No. 4000.


Concerning the Handling of Wire.  Stanley C. Bryant.  Illustrated suggestions for the handling of copper wire and the manner of making joints and tops in signal work.  1800 w.  Sig Engr—June, 1909.  No. 5676.


The Use of Alternating Currents in Railway Signaling.  W. K. Howe.  Read before the Ry. Sig. Assn.  Explains the advantages as compared with direct current, illustrating the use of the A. C. track circuit as applied to electric traction roads.  3000 w.  R R Age Gaz—July 9, 1909.  Serial, 1st part.  No. 6236.

The Resistances and the Application of Double-Wire Transmissions for Operating Switches and Signals at a Distance.  L. H. N. Dufour.  Particulars as to resistance to movement of the different switches and signals, and of parts of a wire-transmission system, discussing possible improvements.  9000 w.  Bul Int Ry Cong—June, 1909.  No. 6458 G.


See also Drawbridges, under CIVIL ENGINEERING, BRIDGES;  Reinforced Concrete, under CIVIL ENGINEERING, CONSTRUCTION;  Signal Lamps, under ELECTRICAL ENGINEERING, LIGHTING.

Surprise Tests.


Train Dispatching.

The A B C System of Train Dispatching.  A. Beamer.  Describes this system as used on the Northern Pacific Ry.  2200 w.  Ry & Loc Engng—Dec., 1908.  No. 796 C.
RAILWAY ENGINEERING

Train Loads

MOTIVE POWER AND EQUIPMENT.

Train Loads.


Train Movements.

Mr. Metzel’s Diagram and That of the Belgian State Railway for Investigating the Utilization of Tracks at Passenger Stations. L. Weissenbruch and J. Verheyen. 1600 w. Bul Int Ry Cong—Feb., 1909. No. 3276 G.

Train Operation.

Extension of the “A. B. C.” Rules on Northern Pacific. An explanation of this system of train operation and the instructions for the change. 1500 w. R R Age Gaz—Nov. 6, 1908. No. 128.


Air Brakes

New Royal Train, Great Northern Railway. Illustrated description of fine special saloons for the use of the King of England. 700 w. Engng—Nov. 27, 1908. No. 869 A.


Train Staff.


Train Weights.


MOTIVE POWER AND EQUIPMENT

Air Brakes.


Percentage of Power Brakes on Trains. Discusses the proposed increase in the percentage of cars equipped with air brakes. 900 w. Am Engr & R. R. Jour—June, 1909. No. 5342 C.

High Brake Cylinder Pressures. G. W. Kiehm. Explains the action of air brakes and discusses the arguments for and against the employment of higher pressures. 1500 w. Ry & Loc Engng—Jan., 1909. No. 1447 C.


Leak at H-6 Brake Valve. Explains some air brake tests. 2500 w. Ry & Loc Engng—May, 1909. No. 4420 C.


Vacuum Brake Trials. Reports trials of the Hardy system on the lines of the Austrian state railways. Six tables. 4000
RAILWAY ENGINEERING

Air Brakes MOTIVE POWER AND EQUIPMENT. Car Repairing

w. Bul Int Ry Cong—Jan., 1909. No. 2433 G.


Air Brake Valves.


Air Pumps.

Care of the Air Pump. G. W. Kiehm. Suggestions for repairs and care. 1500 w. Ry & Loc Engng—Nov., 1908. No. 9 C.

Axle Boxes.


Axles.


Baggage Trucks.


Brakes.

RAILWAY ENGINEERING

Car Trucks

MOTIVE POWER AND EQUIPMENT.

Electric Traction on Steam Railroads. Edwin B. Katte. From a lecture delivered at Harvard University. Remarks on the advantages of electric operation, the systems commonly used, and the electrification recently installed on the N. Y. C. & H. R. R. R. 3000 w. Sib Jour of Engng—Dec., 1908. No. 1351 C.

Compressed Air.


Couplers.


Derrick Cars.

See Erection, under CIVIL ENGINEERING, BRIDGES.

Draft Gear.


Dynamometer Cars.


Electrification.

**Railway Engineering**


Inaugural Address to the Leeds Local Section of the Institution of Electrical Engineers. H. E. Yerbury. (Abstract.) Reviews the progress made in the electrification of tramways and railways, discussing probable future developments. 1200 w. Elect'n, Lond—Nov. 6, 1908. No. 312 A.

**The Electrification of Railways.** A General Comparison of Systems. F. W. Carter. Read before the Rugby Engng. Soc. Compares in a general way the merits and demerits of the various systems of operation, showing that no one system satisfies all needs, and indicates the class of work to which each is suited. 3000 w. Elec Engr, Lond—Feb. 26, 1909. No. 3031 A.


**Electrification of the State Railways of Italy.** Extracts from information supplied by the general director of the State Railways of Italy. Maps. 3000 w. Engr, Lond—April 16, 1909. No. 4394 A.

**Electric-Traction Studies in Switzerland (Gli Studii per la Trazione elettrica in Svizzera).** Emilio Gerli. A résumé of the results of recent extended investigations. Serial, 1st part. 3500 w. Ing Ferro—June 1, 1909. No. 6556 D.


**New York Central Railway Electrification.** Brief illustrated description of the conversion of a part of this steam railway to electric traction on the continuous current system. 3000 w. Tram & Ry Wld—Jan. 7, 1909. No. 2057 B.

**The Log of the New Haven Electrification.** W. S. Murray. Aims to bring the actual operation of the New Haven single-phase electrification as closely as possible to those interested in its merits and faults. Ills. 10000 w. Proc Am Inst of Elec Engrs—Dec., 1908. No. 841 F.


**Proposed Electrification of Part of the Grand Trunk Pacific.** Editorial on the proposal to electrify the portion of the line between the St. Lawrence River and Moncton, New Brunswick. 1000 w. R R Age Gaz—April 30, 1909. No. 4364.

**The Electrification of the Heysham, Morecombe and Lancaster Branch of the Midland Railway.** Em. Uytborek. Describes the various installations, calling attention to the special peculiarities. Ills. 5800 w. Bul Int Ry Cong—April, 1909. No. 4981 G.


**See also Trunk Lines, under STREET AND ELECTRIC RAILWAYS.**

**Freight Cars.**

**A General Service Freight Equipment Car.** Detailed description of a car of the convertible type. Ills. 900 w. Am Engr & R R Jour—Nov., 1908. No. 91 C.

**Standard Fifty-Ton Gondola Coal Car.** Illustrated detailed description of cars for the Virginian Railway. 1200 w. Am Engr & R R Jour—Nov., 1908. No. 88 C.

**Fifty-Ton Steel Gondola Car.** Illustrated detailed description of a car for the Virginian railway. 500 w. Am Engr & R R Jour—Oct., 1909. No. 8303 C.

**Fifty Ton Steel Gondola Car.** Drawings and description of cars for the Nor-
RAILWAY ENGINEERING

Freight Cars

MOTIVE POWER

AND EQUIPMENT.

Locomotive Ashpans.

The Locomotive Ashpan Situation. Editorial on the ashpans used on American locomotives, describing the self-dumping types. 1500 w. R R Age Gaz—Aug. 27, 1909. No. 7397.

Self Clearing Ash Pans. Discusses the leading types of ash pans which fulfill the requirements of the ash-pan law in effect on Jan. 1, 1910, for railways engaged in interstate or foreign traffic. Ills. 2600 w. Am Engr & R R Jour—June, 1909. No. 5337 C.


Locomotive Axle Loads.

Distribution of Locomotive Axle-Loads, in Relation to Bridges. James Dudley Ward Ball. Compares different engines of various types to ascertain which produces a minimum bending moment. Diagrams. 2500 w. Inst of Civ Engrs—No. 3816. No. 8168 N.

Locomotive Boilers.


Circulation in Locomotive Boilers. Roger Atkinson. A description of the movement set up by heating and the arrangements that have been tried to improve it. 1800 w. Ry & Loc Engng—May, 1909. No. 4419 C.


The Relation of the Brick Arch to the Efficiency of the Present Day Locomotive Boiler. George Wagstaff. Explains the advantages of the brick arch, considering its disadvantages have been largely overcome. General discussion. 7000 w. Pro Cent Ry Club—Nov. 13, 1908. No. 1298 C.

Combustion and Heat Absorption in Locomotive Boilers. Lawford H. Fry. A study based on the tests carried out by the Pennsylvania Railroad Company. 4500 w.

Fuel Accounting.


Lifting Jacks.


424
RAILWAY ENGINEERING

Locomotive Boilers


Comparative Tests of Water Tube and Standard Fireboxes. S. S. Riegel. Describes tests of 1-in. scale models in which a large gain in the amount of water evaporated by the water tube boiler designed by the author was shown. Ills. 1400 w. Am Engr & R R Jour—June, 1909. No. 5340 C.


Locomotive Brakes.


Locomotive Cleaning.


Locomotive Construction.


Locomotive Counterbalancing.


Locomotive Crank Axles.

Tests of Frémont-Type Crank Axles (Essais d’ Essieux condés à Flasques évitées). E. Hallard. The results of tests on the Chemin de Fer du Midi show that the form of crank devised by M. Frémont is an improvement over that commonly used. Ills. 1500 w. Rev Gen des Chemins de Fer—Dec., 1908. No. 1913 G.

Locomotive Design.

Design of Oil Burning Locomotives. Harrington Emerson. Presents a comparison between the limitations of coal burning and oil burning locomotives, and the effect on design. 1000 w. Am Engr & R R Jour—Jan., 1909. No. 1592 C.


RAILWAY ENGINEERING

Locomotive Design  MOTIVE POWER  AND EQUIPMENT.  Locomotive Frames


Design of a Four-Cylinder Compound Locomotive (Calcul d'une Locomotive Compound à Quatre Cylindres). Marcel Ubaghs. Illustrated description of the method of obtaining the principal dimensions. 3500 w. All Indus—Oct., 1908. No. 527 D.

Locomotive Dynamometers.


Locomotive Economy.


Steam Consumption of Locomotives (Dampfverbrauch der Lokomotiven). Herr Obergethmann. Discusses the various factors affecting it, gives results of tests, etc. 8300 w. Glasers Ann—May 15, 1909. No. 5785 D.

Locomotive Efficiency.

See Train Speed, under MOTIVE POWER AND EQUIPMENT.

Locomotive Explosions.

The Locomotive Explosion at Cardiff Docks. Gives the Board of Trade investigation into the cause of this disaster. Ills. 5500 w. Mech Engr—Aug. 13, 1909. No. 7322 A.

Locomotive Failures.


Locomotive Feed Water.

A Large Water Softener. Illustrates and describes a plant designed to deal with 30,000 gals per hour. 1200 w. Engr, Lond—Dec. 11, 1908. No. 1223 A.

Locomotive Fireboxes.

Jacobs-Shupert Locomotive Fire Box. H. W. Jacobs. Illustrated description of a new design which is being applied to the "Santa Fe type" engine, and to the new passenger Mallet type engine. 2500 w. Am Engr & R R Jour—March, 1909. No. 2964 C.


Locomotive Flues.


See also Shops, under MOTIVE POWER AND EQUIPMENT.

Locomotive Frames.

Locomotive Fuels


Locomotive Fuels.


Sub-Bituminous or Lignite Coal as Fuel for Locomotives. E. W. Fitt. Describes deposits in Wyoming and Colorado, giving average analyses, and some of the objections to their use on locomotives, and a short description of front-end arrangements that are in use. Ills. 2500 w. Am Engr & R R Jour—Oct., 1909. No. 8302 C.


Influence of Ash on Value of Coal in Locomotive Service. A. Bement. A brief report of experiments, introducing a discussion of this subject. 4000 w. Pro W Ry Club—April 20, 1909. No. 4757 C.


Burning Heavy Residuum Oils in the Locomotives of the Roumanian State Railways (Le Chauffage au Huiles lourdes de Pétrole des Locomotives des Chemins de Fer De l'Etat roumain). Illustrated description of the fire box, etc. 2000 w. Génie Civil—Feb. 6, 1909. No. 3338 D.


Locomotive Life.

On the Serviceable Life and Average Annual Cost of Locomotives in Great Britain. Richard Price Williams. Deals with the locomotive stock of 15 of the principal railways in Great Britain. Tables and diagrams. 4500 w. Inst of Civ Engrs—No. 3766. No. 6449 N.

Locomotive Maintenance.

Efficient Foremen. J. F. Whiteford. Discusses the training and supervision of road foremen of engines to secure the greatest efficiency. Ills. 4200 w. Am Engr & R R Jour—June, 1909. No. 5335 C.

Locomotive Management.


Locomotive Oscillations.


Locomotive Performances.

Locomotive Performance Under Saturated and Superheated Steam. Extracts from a paper by W. F. M. Goss, before
RAILWAY ENGINEERING

Locomotive Performance Motive Power and Equipment.

Locomotives


The Work of Superheater and Compound Locomotives. Charles R. King. Gives charts showing the power capacity of such engines for comparison, with a study of the results shown. 3500 w. Engr, Lond—Dec. 25, 1908. No. 1540 A.

Great Western Six-Coupled Express Locomotive Work. An account of work done by these engines which have proved very satisfactory. 4500 w. Engr, Lond—Dec. 4, 1908. No. 1023 A.

Some Recent Locomotive Performances on the Northern Railway of France. J. T. Burton-Alexander. Gives results of personal observations of results obtained with 4-6-0 passenger engines. 3000 w. Engr, Lond—Oct. 8, 1909. No. 8938 A.

Locomotive Pressures.


Locomotive Rating.

Tonnage Rating and Efficiency. A. W. Vestal. A discussion of the influences that must be considered in determining the most efficient rating of engines. 1600 w. Ry & Loc Engng—May, 1909. No.4417 C.

Locomotive Repairs.


Repairs to Locomotives by Contract Shops. Discusses questions relating to economy and the kind of repairs that could be adapted to outside repair arrangement. 3500 w. R R Age Gaz—Sept. 3, 1909. No. 7585.


Locomotives.

Details of DeGlehn Compound Locomotives. Drawings and description of

the cylinders and of a novel boiler fitted to these locomotives. 1400 w. Am Engr & R R Jour—Nov., 1908. No. 90 C.


Mogul for the Iowa Central. Illustration, with description of a 2-6-0 type for freight service. 700 w. Ry & Loc Engng—Nov., 1908. No. 8 C.

Ten-Wheeler for the Lackawanna. Illustration and description of recent engines for passenger service, weighing 217000 lbs. 900 w. Ry & Loc Engng—Nov., 1908. No. 11 C.

“Pacific” Type Compound Locomotive for the Paris-Orleans Railway. Illustrated detailed description of a 4-6-2 type of engine. 600 w. Engr, Lond—Oct. 30, 1908. No. 200 A.

Mallet Articulated Compound Locomotives for Santo Domingo. Illustrated detailed description. 700 w. R R Age Gaz—Nov. 27, 1908. No. 630.


Locomotives for the A. T. & S. F. Describes engines comprising a recently completed order, illustrating the Pacific (4-6-2) engine. 1000 w. Ry & Loc Engng—Dec., 1908. No. 797 C.

Engines for the Associated Lines. Information concerning the engines for the Harriman Lines, illustrating and describing the 4-4-2 engine for the Sonora Ry., and the 2-6-0 engine for the Cananea Yaqui River & Pacific. 1500 w. Ry & Loc Engng—Dec., 1908. No. 793 C.

Four-Cylinder Compound Locomotive, Hungarian State Railways. Illustrated detailed description of the Atlantic type balanced compound express engine, adopted as the standard type. 2000 w. Engr, Lond—Nov. 27, 1908. No. 870 A.
RAILWAY ENGINEERING

Locomotives

MOTIVE POWER AND EQUIPMENT.

Locomotives

Six-Coupled Locomotive for the North Brabant Railway. Illustration with particulars. 200 w. Engng—Nov. 27, 1908. No. 866 A.


Compound Goods Locomotive, 0-10-0 Type, Servian State Railways. Illustration, with brief description. 500 w. Mech Engr—Jan. 1, 1909. No. 1509 A.

Twelve-Wheeled Duplex Tank Locomotive; Nitrate Railways Co., Chili. Illustrates and describes tank-engines of unusual size, weight, and power. 1500 w. Engng—Jan. 1, 1909. No. 1708 A.


Articulated Compound Locomotive 0-6-6-0 Type. Illustrated description of a Mallet engine recently delivered to the D., N. W., & P. Ry. 600 w. Am Engr & R R Jour—Feb., 1909. No. 2240 C.

2-8-0 for the Lehigh and Hudson River. Illustrated description of consolidation type locomotives for use in heavy freight and coal traffic. 700 w. Ry & Loc Engng—Feb., 1909. No. 2265 C.


A Compound for the Western of France (Locomotive-Tender compound des Chemins de Fer de l’Ouest). Description of a recent four-cylinder, six-wheel model. Ills. 3000 w. Tech Mod—Jan., 1909. No. 2635 D.


Bodmer’s Balanced Locomotives. Herbert T. Walker. Reproductions of original drawings, with description of designs of Bodmer, dating back to 1834. 3500 w. Engr, Lond—March 5, 1909. No. 3176 A.

Vauclain Compound Atlantic Type Locomotive. Illustrated description of engines for heavy passenger service on the C. M. & St. P. Ry. 800 w. Am Engr & R R Jour—March, 1909. No. 2965 C.

Mallet Articulated Compound Locomotives for France. Plate and illustrated description, with dimensions. 1000 w. Engr, Lond—March 19, 1909. No. 3672 A.

Freight Tank Locomotives for the Prussian State Railways. An editorial study of these engines, which are equipped with the Schmidt smoketube superheater, as examples of German practice, comparing with the practice in the United States. 2000 w. R R Age Gaz—March 5, 1909. No. 3030.

Ten-Coupled Mineral Locomotive; Swedish State Railways. Illustration and particulars of a recent type of engine for
Locomotives

MOTIVE POWER AND EQUIPMENT.


Pacific and Atlantic Type Locomotives. Illustrations, elevations, sections and description of engines for the Northern Pacific Ry. 1000 w. Am Engr & R R Jour—May, 1909. No. 4422 C.

4-6-0, for the Chicago, Milwaukee & Puget Sound Railway. Illustrated description of engines known as G-6, for handling the heaviest and fastest passenger trains. 1000 w. Ry & Loc Engng—May, 1909. No. 4418 C.

British Locomotive Building. From evidence of J. F. Robinson before the British Tariff Commission. Gives information in regard to the export trade, raw materials, standardization, etc. 4400 w. R R Age Gaz—May 7, 1909. No. 4539.


Express Passenger Locomotives, North-Eastern Railway. Plate and dimensions of engines for heavy express traffic. 700 w. Engr, Lond.—April 23, 1909. No. 4469 A.


Locomotives


Consolidation Locomotive with New Design of Fire Tube Superheater. Describes one of a series of ten engines built for the Wabash, Pittsburgh Terminal Railway. This locomotive carries 160 lbs. steam pressure and has 25-in. cylinders as against 200 lbs. and 22-in. cylinders for the other nine. Ills. 1900 w. Am Engr & R. R. Jour—June, 1909. No. 5341 C.

Heavy Consolidation for Wabash-Pittsburgh Terminal. Illustrated description of a recently built heavy 2-8-0 freight engine. 800 w. Ry & Loc Engng—June, 1909. No. 5233 C.

Mikado Type Freight Locomotive. Description of powerful freight locomotive of the 2-8-2 type for the Virginian Rwy. Ills. 1800 w. Am Engr & R. R. Jour—June, 1909. No. 5530 C.


Compound Passenger Locomotive. Illustration and particulars of an engine for the Central Argentine Railway. 500 w. Engnr, Lond—June 11, 1909. No. 5636 A.


A Tabular Comparison of Notable Examples of Recent Locomotives Arranged in Order of Total Weights. 3000 w. Am Engr & R R Jour—July, 1909. No. 6190 C.

Mikado Locomotives for the Chicago, Milwaukee & Puget Sound. Illustrated description of a design for 20 recently completed locomotives. 500 w. R R Age Gaz—July 16, 1909. No. 6178 C.

Recent C. & A. Equipment. Illustrations, with descriptions, of locomotives for heavy freight and for fast passenger service. 1900 w. Ry & Loc Engng—July, 1909. No. 6118 C.

Consolidation Locomotives for the Pennsylvania. Illustrates and describes an example of Class H-8b, interesting on account of their weight, tractive power, and details of bracing. 500 w. R R Age Gaz—July 2, 1909. No. 6126.

Ten-Wheel Tank Locomotive (3-ft. 6-in. Gauge); Dutch Indian Railway. Illustrated detailed description of engines recently put in service in Java. Plate. 1200 w. Engng—June 18, 1909. No. 6042 A.


Locomotives Designed and Built at Horwich, with Some Results. George Hughes. Illustrated discussion of designs and performance of locomotives. 12000 w. Inst. of Mech Engrs—July, 1909. No. 6970 N.

Simple 4-4-0 for the Idaho Northern. Illustrated description of an engine equipped with a smoke-box superheater. 500 w. Ry & Loc Engng—Aug., 1909. No. 6870 C.


Eight-Wheel Switching Locomotive. Illustration and dimensions of a very compact engine for the Western Railway of Havana. 500 w. Am Engr & R R Jour—Aug., 1909. No. 6802 C.

RAILWAY ENGINEERING

Locomotives


Simple v. Compound: A Footplate Experience. A comparison based on coal consumption, showing the compound to be superior. 3500 w. Engr, Lond.—Aug. 20, 1909. No. 7485 A.


Minneapolis and St. Louis Engines. Illustrated brief descriptions of types. 800 w. Ry & Loc Engng—Sept., 1909. No. 7580 C.

Mallet Articulated Compound Locomotives, 2-6-6-0 Type, and Switching Locomotives 0-8-0 Type. Drawings and description of engines for the Virginian Railway. 2800 w. Am Engr & R R Jour—Sept., 1909. No. 7576 C.


Latter-Day Developments of the American Locomotive. H. Keith Trask. This first of two articles discusses wheel arrangements and compounding and reviews locomotive development. 4000 w. Engineering Magazine—Nov., 1909. No. 8832 B.

Western Maryland Engines. Illustrates and describes a 4-6-2 passenger, and a Mallet articulated compound for work on grades of 3 per cent. and curves of 20 degs. 1000 w. Ry & Loc Engng—Oct., 1909. No. 8267 C.

Pacific Type Locomotive with Superheater. Illustrated description of 4-6-2 engines, using high degree superheated steam at 150 lbs. pressure, built for the Great Northern Ry. 1200 w. Am Engr & R R Jour—Oct., 1909. No. 8305 C.


Superheated Steam Locomotives, San Paulo (Brazilian) Railway. Illustrated description of a 2-8-0, consolidation type locomotive with 6-wheel tender. 500 w. Engr, Lond.—Oct. 8, 1909. No. 8940 A.


Locomotive Scales.

RAILWAY ENGINEERING

Locomotive Smoke. MOTIVE POWER AND EQUIPMENT. Locomotive Trucks

Locomotive Smoke.


Locomotive Speed.

See Speed, under ELECTRICAL ENGINEERING, MEASUREMENT; and Speed Indicators, under MECHANICAL ENGINEERING, AUTOMOBILES.

Locomotive Speed Recorders.

The Hasler Speed Recorder and Indicator. Illustrated description of a speed indicator and recorder for locomotives adopted on several continental railways. 1400 w. Engng—Feb. 5, 1909. No. 2487 A.

Locomotive Springs.


Locomotive Stokers.


Locomotive Superheaters.

Low, Moderately and Highly Superheated Steam. F. J. Cole. Discusses the advantages and economy of superheated steam in railway locomotives. 3200 w. Am Engr & R R Jour—June, 1909. No. 5329 C.

The Advantages of the Use of Moderately Superheated Steam in Locomotive Practice. Lawford H. Fry. Shows that so far as coal consumption is concerned, a low degree of superheat offers the same opportunity for economy as does a very high degree. 2500 w. R R Age Gaz—March 5, 1909. No. 3034.


Locomotive Symbols.


Locomotive Tenders.


Tender for Six-Coupled Express Locomotive; Bengal-Nagpur Railway. Illustrated description with particulars of engine and tender. Plate. 500 w. Engng—March 5, 1909. No. 3167 A.

Locomotive Testing.


Locomotive Tests.

Indicator Tests and Starting Gear of the 2-5 Four-Cylinder Express Compound Locomotives of the Danish State Railway. O. Busse. Diagrams and observations recorded are discussed. Ills. 1700 w. Bul Int Ry Cong—March, 1909. No. 3625 G.

See also Ergometer, under MECHANICAL ENGINEERING, MEASUREMENT.

Locomotive Trucks.

The Mechanics of the Locomotive Truck. L. S. Randolph. A discussion of
RAILWAY ENGINEERING

Locomotive Valve Gears MOTIVE POWER AND EQUIPMENT.

Locomotive Valve Gears.

Valve Motion Design. Sidney C. Carpenter. Considers link motion design from the standpoint of the strain on the various parts. 1500 w. Ry & Loc Engng—March, 1909. No. 2990 C.

American Balanced Valves. Illustrates and describes two designs,—one is a flat slide and the other a piston valve. 1500 w. R R Age Gaz—May 21, 1909. No. 4799.


The Walschaerts Valve Gear as Applied to Locomotives. The present number deals with the general principles. 1200 w. Ry & Loc Engng—June, 1909. Serial. 1st part. No. 5635 C.


Setting Valves on Locomotives with Walschaert Gear. Oscar Antz. Directions for laying out the gear on each locomotive. Diagrams. 1000 w. Am Engr & R R Jour—April, 1909. No. 3797 C.


Baker-Pilliod Locomotive Valve Gear. Illustrates and describes this new gear and its application. 900 w. Am Engr & R R Jour—Jan., 1908. No. 1595 C.


Young Rotary Valve and Gear for Locomotives. Illustrated detailed description of the recent improvements in this valve gear. 1000 w. R R Age Gaz—Nov. 13, 1908. No. 244.

Locomotive Wheels.


Mail Exchange.


Motor Cars.


The Petrol-Electric System of Traction. Illustrates and describes this system of motor-car traction on the Continent, as installed by the Westinghouse Co. 2000 w. Tram & Ry Wld—July 8, 1909. No. 6606 B.


Railway Motor Car for Siam. Illustrations of this oil-engine car with brief description. 900 w. Engr, Lond—Dec. 4, 1908. No. 1025 A.


Accumulator Cars of the Prussian State Railways. An illustrated description of the electrical equipment of these cars. 2200 w. Tram & Ry Wld—Dec. 3, 1908. No. 1203 B.

Two-Class Accumulator Cars of the Prussian State Railways (Akumulator-doppelwagen der preussischen Staatsbahn-Verwaltung). D. Hönsch. Illustrated cz-
RAILWAY ENGINEERING

Motor Cars

scription of a car to accommodate 100 passengers. 3000 w. Glasers Ann—Nov. 1, 1908. No. 1167 D.


Comparative Tests of Motor Cars and Light Locomotives (Prove di Confronto fra Automotrici e Locomotive leggere).

Refrigeration

Reports trials made on Austrian railways. Ills. 2700 w. Ing Ferro—July 16, 1900. No. 7249 D.

See also Motors, under MECHANICAL ENGINEERING, AUTOMOBILES.

Operating Associations.

Railway Operating Associations. W. F. Allen. Address at Harvard Univ. Reviews the causes that led to their formation, and outlines their history. 15700 w. Bul Int Ry Cong—July, 1909. No. 8025 G.

Passenger Cars.

The Use of Steel in Passenger Car Construction. John McE. Ames. Discusses why steel should be used in passenger construction, and where, with related matters, cost, etc. General discussion. 8500 w. Pro Cent Ry Club—March 12, 1909. No. 4082 C.


New Passenger Equipment for the St. Paul. Illustrated description of the buffet library car, the construction of which is typical of all other cars recently built. 1200 w. R R Age Gaz—Oct. 1, 1909. No. 8246.

New Types of Broad Gauge Underframes and Bogies. Illustrated descriptions of types for the Indian State Railways. 1000 w. Engr, Lond—Nov. 20, 1908. No. 745 A.

The Queen's New Saloon. Illustrated description of a new Royal car for the North-Eastern Railway. 1200 w. Engr, Lond—March 26, 1909. No. 3793 A.

Refrigeration'

Improvements in Refrigerator Cars. Joseph H. Hart. An explanation of the more important improvements recently introduced to increase the efficiency in the transportation of perishable products. 2500 w. R R Age Gaz—Aug. 6, 1909. No. 6620.

Mechanical Refrigeration in Railway Transportation. Joseph Hart. A discussion of the view of the railway, and from a sion of the present situation from the refrigerating viewpoint. 4000 w. R R Age Gaz—April 2, 1909. No. 3741.

RAILWAY ENGINEERING

Repair Card


Repair Card


Sanding Devices.


Shops.


The Railway Workshops, Ipswich, O. Illustrated description of the equipment of one of the finest of modern workshops in Australasia. 1500 w. Aust Min Stand—April 7, 1909. No. 4620 B.


A Study of the Number and Kind of Machine Tools Required in a Railway Locomotive Machine and Boiler Shop. L. R. Pomeroy. Presents a scheme for determining the kind and number of machine tools required to furnish a desired output. 4500 w. Am Engr & R R Jour—April, 1909. No. 3796 C.

Handling Locomotive Tubes. Illustrated description of the manner in which flues are being worked in a B. & O. shop at Garrett, Ind., which turns out repaired boiler tubes at the rate of one a minute. 1000 w. R R Age Gaz—April 9, 1909. 8680 D.


RAILWAY ENGINEERING

MOTIVE POWER AND EQUIPMENT.


Electric Train Lighting on European Railroads. Extracts from a paper by Max Buttner, before the Assn. of Car Lighting Engrs., Chicago. Information in regard to the extensive use of electric light, the equipments used, &c. 3000 w. Ry & Engng Rev—Oct. 23, 1909. No. 8778.

See also D. C. Dynamos, under ELECTRICAL ENGINEERING, DYNAMOS AND MOTORS.

Train Resistance.

Train Resistance. A. Stucki. Considers the different elements entering into train resistance, and the conditions under which each will appear. 2500 w. R R Age Gaz—May 7, 1909. No. 4562.

Graphic Presentation of Train Resistance Formulas. Sidney C. Carpenter. Table and diagram with explanation. 300 w. R R Age Gaz—April 30, 1909. No. 4368.


The Traction of Freight Trains at Different Speeds. Clinton S. Bissell. Explains the development of equations and curves showing weights of freight trains for various speeds and car weights on 1% and 3% grades. 2500 w. Pro Am Soc of Civ Engrs—Sept., 1909. No. 8181 E.


Some Recent Train Resistance Formulæ. Lawford H. Fry. Gives for comparison, formulæ developed from recent tests on the Continent, describing some of the methods employed. 3500 w. Engr, Lond—March 26, 1909. Serial, 1st part. No. 3791 A.

Train Speed.

A Simple Method of Determining Train Speed.
RAILWAY ENGINEERING

NEW PROJECTS.

Trucks


Trucks.
See Wheel Base, under MOTIVE POWER AND EQUIPMENT.

Valve Gears.
See Locomotive Failures, under MOTIVE POWER AND EQUIPMENT.

Water Supply.
See Boiler Waters, under MECHANICAL ENGINEERING, STEAM ENGINEERING.

Wheel Base.

Wheels.

A New Process of Making Chilled Car Wheels. Thomas D. West. Discusses defects of present chilled wheels and their cause, and gives information in regard to a recent process whereby wheels with an even depth of chill are obtained. Ills. 1500 w. Ir Age—Aug. 5, 1909. No. 6891.


Flat-Spots on Car Wheels. Prof. Charles H. Benjamin. Illustrates and describes an apparatus for testing such wheels and determining the impact due to flat spots, and the rail deflections. General discussion. 7500 w. Pro W Ry Club—Nov. 17, 1908. No. 1299 C.

Schoen Steel Wheels. Information concerning standard designs and specifications for various classes of service. Ills. 3000 w. Ir Age—June 17, 1909. No. 5566.

Canadian Pacific.

C. C. & O.

Chile.
The Construction of the Transandine Railway. Illustrated description of the connecting link in the first railway to join the Atlantic and Pacific Oceans across South America. 1500 w. Eng Rec—June 5, 1909. No. 5277.
The Arica-La Paz Railway. Illustrated description of a proposed line between Chile and Bolivia, presenting engineering features of great interest. 1500 w. Engr, Lond—April 30, 1909. No. 4630 A.

C. M. & St. P.
The Extension of the Chicago, Mil-


Coal & Coke Ry.

England.

Erie.
RAILWAY ENGINEERING

India

PERMANENT WAY AND BUILDINGS.

Cable Railways

India.

The Pegu-Moulmein Railway and Sittang River. A. Stewart Buckle. An illustrated account of the construction of this recently completed railway in Burma. 3500 w. Engr, Lond—June 4, 1909 Serial. 1st part. No. 5534 A.

Mexico.


Nigeria.

Railways in Northern Nigeria. Describes the conditions existing and the railways under construction. Plate. 2500 w. Engr, Lond—Sept. 17, 1909. No. 8131 A.

Southern Pacific.


Transandine.

The History of the Transandine Railway. An illustrated description and historical review of this project, which will give railway connection between Buenos Ayres and Valparaiso. 3000 w. Bul Am Reps—March, 1909. No. 3191 N.

Virginia.


See also Chile, under New Projects.

Virginian Ry.

Construction of the Virginian Ry. Illustrated detailed description of the construction work on this line, laid out, principally, to handle the heavy coal traffic between West Virginia and the seaboard at Norfolk. 5000 w. Ry & Engng Rev—March 13, 1909. No. 3136.

Western Pacific.

The Western Pacific. P. S. Hildreth. The second of a series of articles dealing with this road now approaching completion. An illustrated account of the location, grading, alignment, terminal facilities, and roadbed. 4000 w. R R Age Gaz—March 19, 1909. No. 3360.

PERMANENT WAY AND BUILDINGS

Ballast.


The New Road Ballast of the Union Pacific Railroad. Eliot Blackwelder. Gives an analysis of the material used for ballast on this fine road. Ills. 1000 w. Wis Engr—Feb., 1909. No. 4315 D.


Bridges.


See also under CIVIL ENGINEERING, BRIDGES; and Track Construction, under PERMANENT WAY AND BUILDINGS.

Cable Railways.

The Steepest Passenger Cable Railway in Europe. E. Ommegeanck. Illustration and brief account of the Virgil railway, in the Tyrol, a part of which has a 70% grade. 600 w. R R Age Gaz—Aug. 6, 1909. No. 6922.


Determining the Profile of a Cable Railway for Uniform Speed, Taking Into Consideration the Weight of the Rope (Bestimmung des Profils einer Seilbahn,
Railway Engineering

Cable Railways

PERMANENT WAY AND BUILDINGS.


See also C. C. & O., Coal & Coke Ry., Virginian Ry., and Western Pacific, under New Projects; and Conveyors, under Mechanical Engineering, Transporting and Conveying.

Crossing Gates.


See also same title, under STREET AND ELECTRIC RAILWAYS.

Crossings.


The Railway Crossing. F. L. Somervillle. Discusses the development and
RAILWAY ENGINEERING


Abolition of Railroad Grade Crossings in Philadelphia. Describes work of elevating tracks which will cost about $10,000,000. IIs. 3000 w. Eng Rec—April 17, 1909. No. 4015.


See also Concrete, under CIVIL ENGINEERING, Bridges.

Curves.


The application of the Traverse Method to Railroad Curve Problems. William Clyde Willard. Gives the application of this method to the solution of several curve problems. 1000 w. Eng News—Sept. 30, 1909. No. 8205.


The Maintenance of the Track at Curves. Mr. Weikard. Trans. from Organ für die Fortschritte des Eisenbahnmens. Discusses the cause of irregularity of curves. 1400 w. Bul Int Ry Cong—April, 1909. No. 4982 G.


Easement Curves (Uebergangskurven und deren Anschluss an die Bahnrümmungen). E. Haunold. Mathematical discussion of the calculation of transition ends with tables of data. IIs. 3500 w. Zeitschr d Oest Ing u Arch Ver—June 11, 1909. No. 6595 D.

See also Rail Stresses, under Permanent Way and Buildings.

Cut Slopes.

The Use of Locomotive Ashes for Maintaining the Slopes of Cuttings. W. Bauer. Describes the method of application so as to protect the slopes against wet and frost. 1800 w. Bul Int Ry Cong—Dec., 1908. No. 2007 G.

Earth Slides.

See Washouts, under Permanent Way and Buildings.

Earthwork.


Elevated Railways.


Chicago Track Elevation of Burlington Railroad. Describes improvements involving the expenditure of $3,500,000, and amounting to a total of 51.34 miles of single track and 35 street subways. IIs. 3500 w. Eng Rec—Aug. 21, 1909. No. 7304.
Elevated Railways PERMANENT WAY AND BUILDINGS. Rail Creeping

New Chicago Approaches, Chicago and Northwestern Ry. Illustrates and describes the two four-track elevated approaches to the terminal of this railway. 3000 w. Eng Rec—Aug. 28, 1909. Serial, 1st part. No. 7386.


The Delaware Avenue Elevated Railway, Philadelphia. Illustrated detailed description of a steel viaduct about 4161 ft. long, built where settlement and lateral displacement were a serious consideration. 2000 w. Eng Rec—Oct. 23, 1909. No. 8705.

Estimated Unit and Total Costs of Railway Track Elevation at Wilkes-Barre, Pa. 1500 w. Engng-Con—March 19, 1909. No. 3095.


Big Four Track Elevation at Indianapolis. Illustrated description of important track elevation, as a part of plan to eliminate grade crossings. 1200 w. R R Age Gaz—April 23, 1909. No. 4153.


See also Viaducts, under CIVIL ENGINEERING, BRIDGES.

Embankments.


Fire Protection.


Freight Warehouses.

The Steele-Weddes Company's Warehouse in Chicago. Illustrates and describes a warehouse serving as a central receiving and distributing station for the freight tunnel system, as well as for an extensive wholesale grocery business. 2500 w. Eng Rec—Dec. 12, 1908. No. 957.

Grade Reduction.

Reconstruction of a Portion of the Canadian Pacific Railway. An illustrated account of improvement in grades in the Kicking Horse Valley. 3000 w. Engr, Lond—Dec. 25, 1908. No. 1541 A.

Grade and Line Revision, and a Concrete Vousoir Arch Bridge; Cumberland Valley Ry. Illustrates and describes improvements for the elimination of a pusher grade, as well as reduction of grades and curvature, and including a 100 ft. span concrete arch. 800 w. Eng News—April 8, 1909. No. 3851.

See also Viaducts, under CIVIL ENGINEERING, BRIDGES.

Location.


Rack Railways.


Rail Creeping.

RAILWAY ENGINEERING

Rail Fastenings. PERMANENT WAY AND BUILDINGS.

Rail Fastenings.


Rail Joints.

Rail Joints. Information as to the efficiency of different joints summarized from replies to questions sent to important roads. Ills. 2200 w. R R Age Gaz—March 19, 1909. No. 3294.


Rail Records.


Rails.

A Reliable Steel Rail and How to Make It. James E. York. Considers the causes of poor quality and how a reliable quality can be made. Illustrates the York mills for solidifying ingots, and for rolling rails. 4500 w. Bul Am Inst of Min Engrs—May, 1908. No. 5002 F.

The Hardness and Wear of Steel Rails. Editorial on the service of rails and the improved methods of testing for hardness. 1700 w. R R Age Gaz—Nov. 27, 1908. No. 628.

Comparative Rail Specifications. Gives in parallel columns five specifications for Bessemer and open hearth steel rails brought up to date, with editorial. 9500 w. R R Age Gaz—May 21, 1909. No. 4798.


Method of Reporting and Studying Rail Failures on the Harriman Lines. Taken from a paper by J. D. Isaacs, read before the Am. Main. of Way Assn. Outlines the methods of studying the statistics of rail failures. 2500 w. R R Age Gaz—Nov. 13, 1908. No. 243.


Rolled Manganese Steel Rails. Illustrated article giving information concerning the rolling of the Manard rail of the Pennsylvania Steel Co., and the testing machine. 1600 w. Ir Age—April 22, 1909. No. 4997.

The Use of Titanium in Steel for Rails, Car Wheels, Etc. Charles V. Slocum. Explains the important advantages gained by the use of this element. 2200 w. Elec Chem & Met-Ind—March, 1909. No. 1990 C.

Ferrotitantium Steel Rails. Reports experience of the N. Y. Central lines, and the excellent results secured under the 1908 specifications. 1600 w. Ir Age—March 25, 1909. No. 3485.

Titanium Alloy in Rails and Car Wheels. Charles V. Slocum. Information concerning the remarkable improvement which titanium gives to steel and iron. Discussion. 6500 w. Pro Ry Club of Pittsburgh—April 23, 1909. No. 4913 C.


The New 85-lb. Rail Section of the Canadian Pacific Ry. Describes the design of this new rail section. Also editorial review of recent development. 3500 w. Eng News—March 11, 1909. No. 3103.


RAILWAY ENGINEERING

PERMANENT WAY AND BUILDINGS.

Rails


See also Steel Specifications, under CIVIL ENGINEERING, MATERIALS OF CONSTRUCTION.

Rail Stresses.


Rail Testing.


Reconstruction.

The Waterbury Improvements of the New Haven Railroad. Illustrates and describes improvements including the change from single to double track, realignment, elimination of grade crossings, etc. 2500 w. Eng Rec—May 29, 1909. No. 5144.


Rebuilding the Cairo Division of the Big Four. An illustrated account of the methods used, of the terminal facilities, operation, etc. 2000 w. R R Age Gaz—Feb. 26, 1909. No. 2776.

Indianapolis-Terre Haute Double Track of the Big Four. Illustrates and describes work involving a change from single to double track, reducing grades, curves, etc. 2000 w. R R Age Gaz—March 26, 1909. No. 3517.

The Widening of Wemyss Bay Railway. Illustrated detailed description of interesting work to meet conditions of congested traffic on the shores of the Firth of Clyde. Plates. 4500 w. Engng—July 2, 1909. Serial, 1st part. No. 6393 A.


See also Grade Reduction, under PERMANENT WAY AND BUILDINGS.

Record Systems.

See Filing Systems, under INDUSTRIAL ECONOMY.

Roundhouses.

Engine Terminal Requirements. A. O. Cunningham. Discusses the design, arrangement, and cost. 2500 w. Minn Engr—March, 1909. No. 4068 C.


Some Engine House Auxiliaries. William Elmer. Describes auxiliaries that have been found of service in expediting the movement of locomotives at terminals. Ills. Discussion. 8500 w. Pro Ry Club of Pittsburg—Jan. 22, 1909. No. 3192 C.


RAILWAY ENGINEERING

Sanitation

Wabash Locomotive Terminal at Decatur, Ill. Illustrated description of interesting features. 2000 w. R R Age Gaz—Nov. 6, 1908. No. 133.

See also Reinforced Concrete, under CIVIL ENGINEERING, CONSTRUCTION.

Sanitation.


Shops.


Snow Handling.


Spikes.


Stations.

The Manhattan Terminal of the Central Railroad of New Jersey. Illustrated detailed description, confined principally to the passenger station. 1700 w. R R Age Gaz—Nov. 6, 1908. No. 129.


The New Scranton Station of the Delaware, Lackawanna & Western Railroad. Illustrated description of the facilities of this fine station and office building. 2000 w. Eng Rec—Nov. 28, 1908. No. 694.

Chattanooga Passenger Terminal Station. Illustrated detailed description of a station serving five railways. 1500 w. R R Age Gaz—March 19, 1909. No. 3292.


Union Passenger Station at Salt Lake City. Illustrated description of a reinforced concrete structure on pile foun-

Glasgow Central Station Extension. Donald A. Matheson. Abstract of a paper read before the Inst. of Civ. Engrs. Describes the reconstruction and equipment to meet modern requirements. 2200 w. Engng—Nov. 20, 1908. No. 740 A.

Railway Facilities at Nottingham. Reviews the stations that have been in service in this English city, describing particularly the Victoria and the Midland stations recently built. Plans. 2800 w. Engr, Lond—April 30, 1909. No. 4031 A.


Railway Improvements in Rotterdam (Spoorwegverbindingen te Rotterdam). A. Plate. Describes a new station, terminal improvements at Delft harbor, etc. Ills. 14000 w. De Ingenieur—Sept. 25, 1909. No. 821 D.

See also Steel, under CIVIL ENGINEERING, CONSTRUCTION.

Surveying.

See same title, under CIVIL ENGINEERING, MEASUREMENT.

Switches.

Practical Railway Track Work—Switches. K. L. Van Auken. A consideration of switch construction work. 4000 w. Wis Engr—April, 1909. No. 5889 D.

Terminals.


Steel Construction in the New York Terminal of the New York Central & Hudson River Railroad. Outlines the general character of the terminal yards and illustrates and describes features of
RAILWAY ENGINEERING

Terminals

PERMANENT WAY AND BUILDINGS.

Track Construction

the steel structures. 3800 w. Eng Rec—April 10, 1909. No. 3859.

New York Passenger Terminal, Central R. R. of New Jersey. Interesting features of the new terminal at the foot of Liberty St. are illustrated and described. 2500 w. Eng Rec—May 22, 1909. No. 4924.

Erie Railroad Terminal Improvements at Jersey City. Illustrated detailed description of the Erie portion of the sub-way of the Hudson tunnels, which is designed to support very heavy loads. 1500 w. Eng Rec—Oct. 16, 1909. 1800 w. Eng Rec—Oct. 16, 1909. No. 8977.


Electrical Features of the New Northwestern Railroad Terminal in Chicago. Illustrated general account of the power plant, etc. 3500 w. Elec Wd—July 8, 1909. No. 6219.

Proposed Terminal Improvements at St. Louis. Plans and description of the improvements proposed, and report of the restrictions that are the cause of controversy and delay. 2000 w. R R Age Gaz—Sept. 10, 1909. No. 7656.

Duluth Passenger Terminal of the Wisconsin Central Railway. Detailed description of a terminal where the physical conditions made the construction difficult. Ills. 3500 w. Eng Rec—Sept. 25, 1909. No. 8069.


Railroad Terminal Improvements at Providence, R. I. George B. Francis. Gives the history and illustrated description of the union terminal station developments which have been in progress for the last ten years. 17500 w. Jour Assn of Engng Soes—May, 1909. No. 6350 C.


Louisville and Nashville Terminals at Pensacola. Illustrated description of wharves, track facilities, and improvements for the export and import cargoes. 1000 w. R R Age Gaz—March 12, 1909. No. 3099.

Glasgow Central Station Extension. Donald Alexander Matheson. Describes the leading features of the extension scheme. Also discussion. Ills. 65000 w. Inst of Civ Engrs, No. 3737—Nov. 10, 1908. No. 6447 N.

A Rail and Water Freight Terminal at Bristol, England; Great Western Ry; Illustrated description of interesting work for the extension of terminal facilities. 1500 w. Eng News—Dec. 19, 1908. No. 936.


See also Roundhouses, Stations, and Tunnels, under PERMANENT WAY AND BUILDINGS.

Tie Rods.


Ties.


See also Rail Joints, under PERMANENT WAY AND BUILDINGS; Timber Preservation, under CIVIL ENGINEERING, MATERIALS OF CONSTRUCTION; and Ties, under STREET AND ELECTRIC RAILWAYS.

Track Construction.

The Detailed Cost of Laying Side Tracks and Switches, Including Labor and Materials. Gives eight examples of the actual cost of this sort of work on a
RAILWAY ENGINEERING

Track Construction PERMANENT WAY AND BUILDINGS.

Tunnels

western railway. 1200 w. Engng-Con—Nov. 4, 1908. No. 121.

Practical Railway Track Work. K. L. Van Auken. The present article considers double-tracking and relaying track. 4500 w. Serial, 1st part. Wis Engr—Feb., 1909. No. 4316 D.


A New Design of Railway Track Construction. Describes a system which eliminates cross-ties and refrains on well-rolled bed of stone ballast to carry the load. 1000 w. Eng News—Sept. 30, 1909. No. 8299.


Track Superstructure in Tunnels. Brief illustrated description of the type being considered by the Pennsylvania R. R. Also editorial. 1700 w. R R Age Gaz—Nov. 6, 1908. No. 135.

Track Superstructure on German Railways (La Superstructure des Voies des Chemins de Fer Allemandes). M. Blum. Illustrates and describes types of ties, rails, rail joints, etc. 6000 w. Rev Gen d Chemins de Fer—Nov., 1908. No. 1111 G.


See also Ballast, under PERMANENT WAY AND BUILDINGS; and Earthwork, under CIVIL ENGINEERING, CONSTRUCTION.

Track Depression.


Track Maintenance.


Annual Maintenance of Way Convention. A report of the Chicago meeting, March 16, 17, 18, 1909, with committee reports, discussions, addresses, etc. Ills. 9000 w. R R Age Gaz—March 19, 1909. No. 3293.


See also CURVES, under PERMANENT WAY AND BUILDINGS; and Motor Cars, under MOTIVE POWER AND EQUIPMENT.

Train Sheds.

Bush Train Shed at Scranton. Illustrated description, with a statement of the advantages of these sheds. 1000 w. R R Age Gaz—March 19, 1909. No. 3291.

Transfer Tables.


Tunnels.

RAILWAY ENGINEERING

Tunnels


See also same title, under CIVIL ENGINEERING, CONSTRUCTION; Track Construction, under PERMANENT WAY AND BUILDINGS; and Tunnels, under CIVIL ENGINEERING, CONSTRUCTION.

Tunnel Ventilation.


A Study of Tunnel Ventilation (Studi delle Ferrovie dello Stato sulla Ventilazione delle Galerie). An illustrated account of a study made by the Italian state railways. Serial. 1st part. 4000 w. Ing Ferro—Dec. 1, 1908. No. 1938 D.

Turning Y's.

The Employment of Turning Y's for Locomotive (L'Emploi de Circuits à Rebroussements pour le Tournage des Locomotives). M. Goupil. Describes various track arrangements for locomotives too long to be handled on turntables. Ills. 2000 w. Ann d' Ponts et Chauss—1908-V. No. 2611 E + F.

Washouts.


Yard Accidents.


Yards.


Electric Installations in the Wustermark Distributing Yard (Die elektrischen Anlagen des Verschiebebahnhofes Wuster-mark). Herr Meyer. Describes the power plant, the uses to which the power is put, the lighting, etc. Ills. 3500 w. Elek Kraft u Bahnen—June 14, 1909. No. 6712 D.


See also Car Haulage, under MOTIVE POWER AND EQUIPMENT.

TRAFFIC

Car Carding.

Carding of Cars. J. E. Stumpf. Read before the Cent. Assn. of R. R. Officers. Discusses the form of cards to be used, their color, etc. 800 w. R R Age Gaz—Nov. 6, 1908. No. 134.

Car Distribution.


Car Efficiency.


Car Interchange.

Report of Committee of the Railway Club of Pittsburgh on Revision of M. C.
RAILWAY ENGINEERING

Combinations

B. Rules of Interchange. Gives the changes recommended, with discussion. 10000 w. Pro Ry Club of Pittsburgh—March 26, 1909. No. 4527 C.


Traffic Office


Formulae


Freight


Freight Handling on the Metropolitan Division of the Toronto and York Radial Railway. Describes the physical characteristics of this line, the equipment and methods. Ills. 2500 w. Elec Ry Jour—July 3, 1909. No. 6098.

Freight Claims


Freight Classification


Freight Handling


Freight Offices

Local Freight Office Efficiency, from the Viewpoint of the General Freight Office.
RAILWAY ENGINEERING

Freight Rates


Freight Rates


Transcontinental Freight Rates. Editorial discussion of the charges against the present system, and the possible remedies. 3500 w. R R Age Gaz—May 14, 1909. No. 4656.

Railway Freight Rate Making. Samuel O. Dunn. A lecture at the Univ. of Illinois. Discusses the factors that determine rates and conditions affecting them. 6000 w. R R Age Gaz—Aug. 6, 1909. No. 6918.


Shall Rates in the West Be Based on Distance or on Industrial and Commercial Conditions? Editorial discussion. 2500 w. R R Age Gaz—Oct. 8, 1909. No. 8447.


Freight Traffic


L.C.C. Decisions.


Mail Carrying.

Railway Mail Pay. Julius Kruttshchnitt. Reviews legislation and reduction of rates during the last ten years, giving receipts and other information. 3500 w. R R Age Gaz—April 9, 1909. Serial. 1st part. No. 3846.

Mineral Products.

See Transportation, under MINING AND METALLURGY, MISCELLANY.

New York.


Passenger Rates.


Review.


Tariffs.

Railway Tariffs, Their Compilation, Filing and Inspection. Discusses critically the filing devices and filing systems in use, especially the system in use on the Hawaiian lines, and the Cook system. 5500 w. R R Age Gaz—Aug. 27, 1909. No. 7400.

MISCELLANY

Accounting.


Africa.


Alaska.


Apprenticeship.

Student Employees on the Harriman
Arabia.


Arabia.


The Hedjaz Railway (Die Mohammedhaschische Eisenbahn, Hedschasbahn). E. A. Ziffer. A brief general description of the line, rolling stock, etc. Ills. 4500 w. Mitt d Ver f d Förd d Lokal und Strassenbahnenwesens—June, 1909. No. 7254 F.

Asia.

Railroad Building in Asia. John Foord. Interesting account of the active development now under way, and the influences which have brought the present situation. 5000 w. Ir Age—Sept. 2, 1909. No. 7515.

Associations.


Australia.


Boston.


British Columbia.


Canada.

Transport and Canadian Development. Editorial, with map, on the importance of transport facilities in the development of the country. 2000 w. Engng—Oct. 15, 1909. No. 8032 A.

C. C. & O. R. R.


China.

The Railways of China. Information concerning the actual construction and lines projected, with statement of the nations furnishing the capital and responsible for the management of the railways after construction. Map. 2200 w. Engr, Lond—March 12, 1909. No. 3423 A.

Railway Development in China. Arthur John Barry. Briefly outlines the history of the railway movement in China, showing the obstacles that had to be overcome, describing the railways constructed and giving interesting information. General discussion. 15000 w. Jour Soc of Arts—May 21, 1909. No. 5203 A.

Railway Development in China. R. C. Hardman. Outlines present means of transportation, what has been done toward the development of a railway system, and the outlook for expansion in the future. Ills. 3300 w. Transit—June, 1909. No. 6480 N.

Colombia.

The Dorada Railway Extension in Colombia. An explanation of conditions and of the inaccessible locations chosen for the capital cities of South America, and an illustrated description of an extension of 50 miles recently constructed to connect Cam-bao with Honda. 1800 w. Engr, Lond—March 12, 1909. No. 3426.

Costa Rica.


Earning Power.


Education.

Practical Education for Railroad Service. L. H. Turner. Gives the author's views in regard to the aim of practical
RAILWAY ENGINEERING

England

education. Followed by general discussion. 14500 w. Pro Ry Club of Pittsburgh—May 28, 1909. No. 6357 C.

England.


Presidential Address of James Charles Inglis, before the Institution of Civil Engineers. Discusses the question of transport, especially the work of Isambard Kingdom Brunel. 10000 w. Engng—Nov. 6, 1908. No. 325 A.


The London and North-Western Railway and Crewe Works. A review of the history and detailed description of the principal features. Plates and Ills. 21000 w. (Sup.) Engr, Lond—Dec. 11, 1908. No. 1221 A.


Exposition.


Finland.

The Railways and Waterfalls of Finland. Illustrated description of the waterfalls, and of the improvements carried out by the State. Maps. 4500 w. Engr, Lond—Sept. 17, 1909. No. 8130 A.

France.

Lines of Local Interest in France. C. Colson. Discusses the French local railways and urban railways in 1907, the urban railways and tramways, and the proposed French statute concerning lines of local interest. 7500 w. Bul Int Ry Cong—Feb., 1907. No. 3282 G.


The Construction of Railways in Department of the Cher (Notice sur la Construction des Chemins de Fer départementaux du Cher). M. Mayer. Reviews the financial, traffic and engineering problems connected with building 165 kilometres of lines of local interest in this part of France. Ills. 16000 w. Ann d Ponts et Chaussées—1909-1. No. 4811 E + F.

French West Africa.


German West Africa.

The Lüderitzbucht-Keetmanshoop Railway in German Southwest Africa (Die Bahn von Lüderitzbucht nach Keetmanshoop in Deutsch-Südwestafrika). Herr Friedrich. Illustrated description of the line, rolling stock, construction work, etc. 5000 w. Glaser's Ann—March 15, 1909. No. 4276 D.
Government Control

Government Control.
The Railways and the People. Frank Trumbull. From an address before the Board of Trade of Fort Worth, Texas. Discusses regulation of rates, over-capitalization, etc. 2000 w. R R Age Gaz—Feb. 19, 1909. No. 2546.


Government Ownership.


History.
The Centenary of Railroad Travel. W. B. Paley. Concerning Richard Trevithick's experiments, one-hundred years ago. 1000 w. R R Age Gaz—Nov. 6, 1908. No. 132.

India.
A Railway to India. C. E. D. Black. Map and discussion of a projected line through Northern Arabia and Southern Persia, connecting Egypt and India. 3000 w. Nineteenth Cent—Jan., 1909. No. 1838 D.

Light Railways in India. Percy F. Martin. The present article shows the need of short branch railways, explains the conditions, and matters relating to the problems of their construction. 2500 w. Engr, Lond—April 23, 1909. Serial. 1st part. No. 4466 A.

Indo-China.
The Railways of Indo-China (Note sur les Chemins de Fer de l'Indo-Chine). R. Godfernaux. Describes the lines, rolling stock, buildings, economic conditions, etc. Ills. Serial, 1st part. 9500 w. Rev Gen des Chemins de Fer—June, 1909. No. 6532 G.

Ireland.
The Bray and Wicklow Railway. Illustrated description of this railway on the Irish coast, where the encroachments of the sea causes great expense. 1500 w. Engr, Lond—July 9, 1909. No. 6429 A.

Italy.

Java.

Long Island.
The Long Island. Editorial review of conditions of a road whose business is largely suburban service, and of the means being tried to put the road on a profitable basis. 1200 w. R R Age Gaz—May 14, 1909. No. 4657.

Management.


Methods of the Santa Fe. Efficiency in the Manufacture of Transportation. Charles Buxton Going. This second article of a series considers the stores-keeping, shop-order and works-order systems. Ills. 4000 w. Engineering Magazine—April, 1909. No. 3523 B.

Methods of the Santa Fé. Efficiency in the Manufacture of Transportation. Charles Buxton Going. This third article of a series deals with the manufacturing policies for the economical maintenance of motive power. Ills. 4000 w. Engineering Magazine—May, 1909. No. 4344 B.
RAILWAY ENGINEERING

Management

Methods of the Santa Fé. Efficiency in the Manufacture of Transportation. Charles Buxton Going. This fourth article of a series deals with the administration, supervision and extension of the bonus system. 5000 w. Engineering Magazine—June, 1909. No. 4984 B.


The Successful Mechanical Department. Fundamental principles underlying an efficient organization. Discussion and comment. 2700 w. Am Engr & R R Jour—June, 1909. No. 5228 C.

Suggested Possibilities of Supply Department Management. George G. Yeomans. Gives a comparison of the amount of material and supplies in stock on different railways and analysis of conditions that should determine the amount of stock to be carried. 3500 w. R R Age Gaz—July 30, 1909. No. 5781.


See also Education, under INDUSTRIAL ECONOMY.

Mexico.


The Tehuantepec Railway and Terminal Ports. Gives the early history of this railway and a description of the line and terminal ports, with a discussion of the advantages of the route as a com-

petitor of the Panama Railway and Canal. 2500 w. Engr, Lond—Aug. 27, 1909. Serial. 1st part. No. 7658 A.

Montenegro.

The First Railway in Montenegro (La Prima Ferrovia nel Montenegro). A. Baldacci. Describes the line and discusses its economic importance. Ills. 5000 w. Riv Marit—Oct., 1908. No. 537 E + F.

New Zealand.


Norway.

The Christiania-Bergen Railway. Ole W. Lund. History and illustrated description of a line constructed through difficult country; remarkable for the height to which it rises, the severe climate and enormous masses of snow, and the number of tunnels. 3300 w. R R Age Gaz—July 30, 1909. No. 6782.


N. Y., N. H. & H.


Pennsylvania.


Review of 1908.

Railways and Tramways. A summary of railway work in different parts of the world. 6000 w. Engr, Lond—Jan. 1, 1909. No. 1720 A.

South Africa.


Southern Pacific.

Twenty-fourth Annual Report of the Southern Pacific Company and Proprietary Companies for the fiscal year ended
RAILWAY ENGINEERING

Statistical Charts


Statistical Charts.


Turkey.


United States.


The Railroad Situation of To-day. Frank Trumbull. Discusses the problem of how to settle satisfactorily the relations between private capital and the users of American railroads. 4500 w. Jour W Soc of Engrs—Feb., 1909. No. 9397 D.


Railroads in the Upbuilding of the South. W. J. Meany. A general review of what has been accomplished, especially recent important roads, and the future needs. 5000 w. Mfrs Rec—Jan. 7, 1909. (Special No.) No. 1560 C.

Problems Fronting Railroads in South Atlantic States. J. T. Odell. Discusses the railroad situation in the South, the need for improvement and modernization. 2200 w. Mfrs Rec—Jan. 7, 1909. (Special No.) No. 1559 C.

Valuation.


The Valuation of Railways. Considers some of the benefits that may be expected to result from valuation, and some of the difficulties. 4500 w. R R Age Gaz—Jan. 22, 1909. Serial, 1st part. No. 3003.

Some Neglected Factors of Fair Valuation. Editorial on the desirability of considering other factors than the cost of reproduction. 1800 w. R R Age Gaz—March 5, 1909. No. 3029.

Valuation of Railways in Minnesota. Gives the results of an exhaustive physical valuation, explaining methods used. Also editorial. 6000 w. R R Age Gaz—Feb. 5, 1909. No. 2301.


Welfare Work.

Saloons versus Railway Clubs on the Harriman Lines. F. G. Athearn. Illus—
Western Railroad Ass'n


Western Railroad Association,
The Relations of the Western Railway Association to Railways and the Manufacturers of Railway Devices. George S. Payson. Address and discussion on railway patents. 9000 w. Pro W Ry Club—Sept. 21 1909. No. 8740 C.
STREET AND ELECTRIC RAILWAYS

Accounting

Accounting.


Adelaide, Australia.

Adelaide Electric Tramways. Description of a modern plant and system operated by a municipal trust. Ills. 5500 w. Aust Min Stand—April 28, 1909. No. 5458 B.

Adhesion System.

See Switzerland, under STREET AND ELECTRIC RAILWAYS.

Austria.

Bombay.
The Tramways of Bombay. Illustrated detailed description of the system as converted to electric traction. 3000 w. Tram & Ry Wld—July 8, 1909. No. 6605 B.

Boston.

Report of the Boston Metropolitan Improvement Commission. Abstract of a report particularly considering transpor-

Brooklyn Bridge

Report of the Tramways and Light Railways Association Committee on "Braking Arrangements and Sanding Gear on Tram Cars." 5000 w. Elect'n, Lond—Nov. 13, 1908. Serial. 1st part. No. 438 A.

Brakes for Electric Tram Cars. Edgar Harry Cockshott. Describes investigations carried out to ascertain the reliability of brakes in use under adverse conditions, and to devise, if possible, a new brake of greater efficiency. 5500 w. (Abridged.) Inst of Civ Engrs—No. 3752. No. 882 N.

Improvement in the Upkeep of the Braking Equipment of Tramcars. P. Scholtes. Translation of a report of the replies received to questions sent out. 2500 w. Elect'n, Lond—Feb. 5, 1909. No. 2477 A.

Braking.

Brooklyn.

Brooklyn Bridge.

Traffic on the Brooklyn Bridge, New York City. F. van Z. Lane. Considers features of the traffic as an example of high-class operation when traffic density, capacity, safety, comfort, speed and reliability are considered. Deals with the evening rush hour, from 5 to 6 p. m. Plate. 3000 w. R R Age Gaz—March 2, 1909. No. 3096.
Canal Traction


Car Barns.


See also same title, under MECHANICAL ENGINEERING, HEATING AND COOLING; and Fire Protection, under CIVIL ENGINEERING, WATER SUPPLY.

Car Bearing Friction.


Car Fenders.


Car Inspection.


Car Maintenance.

Methods and Costs of Inspection and Repair Work on the South Side Elevated Railroad. An effective record system used in Chicago is described and some figures of cost given. 2500 w. Elec Ry Jour—April 3, 1909. No. 3667.


Rolling Stock Standardization in Brooklyn—Records and Forms. Explains the use of the record system in car maintenance, the bases of inspection and repair, etc. 3500 w. Elec Ry Jour—May 29, 1909. Serial. 1st part. No. 5000.


See also Shops, under STREET AND ELECTRIC RAILWAYS.

Cars.


Pay-Within Cars in Washington, D. C. Illustrates and describes the new cars being placed in service. 1500 w. Elec Ry Jour—Sept. 18, 1909. No. 7794.


Double Motor Cars on the Blankenese-Ohlsdorf Railway (Automotrices couplées du Chemin de Fer électrique de Blankene à Ohlsdorf par Hambourg). A. Le Vergner. Illustrated description of a double car with two motors. Plate. 1500 w. Génie Civil—Nov. 7, 1908. No. 1119 D.

See also Single Phase, Track, and Trolley Lines, under STREET AND ELECTRIC RAILWAYS.

Car Testing.


Car Ventilation.


Car Weights.


Car Wiring.

Fire Risks in Heavy Car Wiring and Control. Criticises prevailing methods and suggests the use of grooved slabs of asbestos slate, and placing the whole control apparatus in a fireproof compartment. 2000 w. Elect'n, Lond—April 9, 1909. No. 4025 A.

Communication.

The Installation and Protection of Telephones for Electric Railway Service. Frank F. Fowle. Illustrated detailed description, with information in regard to types, cost, etc. 4000 w. Elec Ry Jour—Dec. 5, 1908. No. 801.

Conductors.


Three-Wire System for Tramways. E. Goulding. Presents the advantages and economics of this system. Ills. 1500 w.
Conduit System

Tram & Ry Wld—Jan. 7, 1909. No. 2058 B.

Conduit System.


Controllers


Crossing Gates.


Cuba.


Current Clocks.

Results with Current Recording Clocks on the Grosse Berliner Strassenbahn. A report of improvement due to the installing of clocks in place of wattmeters. 1200 w. Elec Ry Jour—Sept. 11, 1909. No. 7676.

Current Economy.


Denver.


Direct Current.


Electric Traction by Constant Intensity Continuous Current (Sur la Traction par Courant continu à Intensité constante). Discussion on M. Bourdel's paper on this subject. 2500 w. Bul Soc Int des Elecns—May, 1909. No. 5720 F.


See also Voltage, under STREET AND ELECTRIC RAILWAYS.

Dispatching.

See Signalling, under STREET AND ELECTRIC RAILWAYS.

Economics.


Electric Traction.


Electric Traction


England

English Electric Railways. Outlines what has been accomplished in England up to the present time. 2500 w. R R Age Gaz—July 9, 1909. No. 6237.

Fish Plates.

An Electro-Mechanical Fish Plate (Une Eclisse électro-mécanique). E. Sauvage. Describes an invention so-called because it may be used on electric railways without any further bond. Ills. 4000 w. Bul Soc d'Encour—May, 1909. No. 6523 G.

France

Electric Traction on the Fayet-Chamonix Line and Its Extension to the Swiss Frontier (La Traction électrique sur la Ligne du Fayet à Chamonix et à la Frontière Suisse). M. Auvert. Illustrated description of the power plants, stock, etc., of this direct-current road in France. Plates. 5000 w. Rev Gen d Chemins de Fer—Nov., 1908. No. 1112 G.

Freight Traffic

Freight Service of the Toledo & Western Railroad. An illustrated account of a prosperous undertaking following closely the steam railroad methods. 1200 w. Elec Ry Jour—Sept. 18, 1909. No. 7792.


Great Northern


Hamburg


Havana


Interurban


STREET AND ELECTRIC RAILWAYS

Interurban


See also Central Stations, under ELECTRICAL ENGINEERING, GENERATING STATIONS.

Japan.


Locomotives

Experimental Electric Locomotive. Illustrated description of a design for the purpose of trying a scheme of transmitting power to the drive wheels through side rods; also editorial. 2200 w. Ry & Engng Rev—May 15, 1909. No. 4740.


Electric Locomotives for the Great Northern. Illustrates and describes the mechanical construction which is a distinct departure from previous practice. 600 w. R R Age Gaz—Jan. 15, 1909. No. 1793.

Electric Locomotives for the G. N. Illustrated description of recently completed electric locomotives for operating trains through the Cascade tunnel. 900 w. Ry & Loc Engng—March, 1909. No. 2938 C.

New York Central Electric Locomotives. Illustrated description of changes made in the original design which greatly increase the efficiency. 2500 w. R R Age Gaz—June 25, 1909. No. 5888.


Detroit River Tunnel Locomotives. Illustrates and describes locomotives to be operated by direct current for hauling both freight and passenger trains. 2200 w. R R Age Gaz—Aug. 20, 1909. No. 7169.

STREET AND ELECTRIC RAILWAYS

Locomotives

Articulated Electric Locomotive for the Detroit River Tunnel. Illustration and description of this powerful machine for hauling both passenger and freight trains through the tunnel. 2200 w. Am Engr & R R Jour—Sept., 1909. No. 7577 C.

New Locomotives of the Chicago City Railway. Illustrated description of 40-ton electric locomotives for switching purposes. 1000 w. Elec Ry Jour—Nov. 21, 1908. No. 366.

Four-Speed Three-Phase Locomotive for the Simplon Tunnel. Plate and illustrated description of electric locomotives recently completed for this service. 3000 w. Engng—Oct. 1, 1909. Serial. 1st part. No. 8491 A.


The Driving of Electric Trunk-Line Locomotives (Beitrag zur Frage des Antriebes elektrischer Vollbahnlkomotiven). Herr Heyden. Discusses the various systems of power transmission from motor to axle. IIs. 2800 w. Elek Kraft u Bahnen—June 4, 1909. No. 6711 D.


See also Simpkin, under STREET AND ELECTRIC RAILWAYS.

London.


The Tramways of the County of London. Map, and illustrated detailed description of their organization, working, construction, equipment, rolling stock, etc. 7000 w. Tram & Ry Wld—Sept. 2, 1909. No. 7765 B.

Los Angeles.


Management.


Street Railways vs. People. Samuel H. Barker. From an address before Wharton Sch. of Fin. & Com., Univ. of Penn. Discusses street railway capitalization and management in large cities, cost of service, etc. 4000 w. Eng News—Feb. 25, 1909. No. 2756.

Massachusetts.


Mexico City.

Conditions of Electric Railway Operation in Mexico City. An illustrated article describing the character of the population and features of the tramway system. 3500 w. Elec Ry Jour—May 1, 1909. No. 4371.

STREET AND ELECTRIC RAILWAYS

Motors

See Railway Motors, under ELECTRICAL ENGINEERING, DYNAMOS AND MOTORS.

Motor Suspension.


Operation.


Pará.

The Pará Tramway and Lighting System. An illustrated description of the complete reconstruction of the tramway system, and the installation of electric lighting. 2500 w. Elec Ry Jour—March 6, 1909. No. 2560.

The Tramways of Pará. An illustrated account of the reconstruction and electrification of the tramways. 3300 w. Tram & Ry Wld—March 4, 1909. No. 3228 B.

Paris.


Portland, Ore.


Power Losses.

Economy in Current Consumption. C. J. Spencer. Discusses the sources of loss and the remedies on tramways. 2500 w. Tram & Ry Wld—Nov. 5, 1908. No. 432 A.

Power Stations.

See Central Stations, and Hydro-electric, under ELECTRICAL ENGINEERING, GENERATING STATIONS.

Power Transmission.

See Electrification, under RAILWAY ENGINEERING, MOTIVE POWER AND EQUIPMENT.

Rack Railways.

A New Mountain Railway in Tyrol. Brief illustrated description of the Rittner line, a portion of which is a rack on the Stub system. 1800 w. Elec Engng—Dec. 10, 1908. No. 1205 A.


See also Switzerland, under STREET AND ELECTRIC RAILWAYS.

Rail Bonding.


Railroad Crossings.

See Crossings, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS.

Railless.

General Urban and Interurban Transportation and Railless Electric Traction. F. Douglas Fox. Read at Dublin meeting of the British Assn. Aims to show in detail the comparative economics of the tramway and the mechanical omnibus. 4200 w. Engr, Lond—Nov. 29, 1908. No. 746 A.


Electric Trolley Automobiles (Elektrische Oberleitungs- Automobilien). Ludwig Stoll. Illustrates and describes several European railless electric-traction systems. 4000 w. Mit d Ver f d Förd Lokal u Strassenbahnwesens—March, 1909. No. 4247 F.

Rails.

T-Rail in Paved Streets. R. A. Dyer, Jr. Read before the St. Ry. Assn. of the State...
STREET AND ELECTRIC RAILWAYS

Rails


Rawtenstall.

Records.
Record System of the Third Avenue Railroad Company, New York. Explains system and gives forms that have proved valuable in recording the performance of equipments in detail. 900 w. Elec Ry Jour—March 27, 1909. No. 3599.


See also Record Systems, under CIVIL ENGINEERING, CONSTRUCTION.

Record Systems.
See Filing Systems, under INDUSTRIAL ECONOMY.

Rio de Janeiro.

Salt Lake City.
Rehabilitation of the Utah Light & Railway Property. Illustrated description of the reconstruction of a line having 100 miles of track, practically all within Salt Lake City, Utah. 3000 w. Elec Ry Jour—Oct. 2, 1909. Souvenir Sec. No. 8218.

Sanding Gear.
See Brakes, under STREET AND ELECTRIC RAILWAYS.

San Francisco.

Seattle.
Railways of the Puget Sound District. Map and illustrated description of the electric railways of Seattle, which are of special interest because of the natural features and great increase in population. 7000 w. Elec Ry Jour—Oct. 2, 1909. Souvenir Sec. No. 8221.

Shops.
The Reconstructed Car House and Shops of the Third Avenue Railroad Company. Illustrated description of features of the recently completed reconstruction at the 66th Street shops. 3500 w. Elec Ry Jour—April 3, 1909. No. 3664.


Signalling.


Signaling of the Brooklyn Bridge and Its Manhattan and Brooklyn Terminals. Illustrated detailed description of the special system of automatic signaling installed. 2200 w. Sig Engr—April, 1909. No. 3998.
STREET AND ELECTRIC RAILWAYS

Signalling


Cab Signals and Cab Telephones on the Toronto and York Radial Railway. Illustrated description of the signalling apparatus installed on an electric line running from Toronto to Port Credit. 1200 w. R R Age Gaz—Aug. 6, 1909. No. 557.


Simplon.


Single-Phase.


The Chicago, Lake Shore & South Bend Railway. Illustrated detailed description of important single-phase installations extending from South Bend, Ind., to Pullman, Ill. 4000 w. Elec Ry Jour—April 10, 1909. No. 3823.


Simplon.


Single-Phase.


The Chicago, Lake Shore & South Bend Railway. Illustrated detailed description of important single-phase installations extending from South Bend, Ind., to Pullman, Ill. 4000 w. Elec Ry Jour—April 10, 1909. No. 3823.


Single-Phase Electric Traction on the Swedish State Railways. Abstract of a report prepared by R. Dahlander, dealing with the power house, line and locomotive equipment, etc. 3300 w. Elect'n, Lond—March 5, 1909. No. 3151 A.


Single-Phase Extensions of the Lyons (France) City Lines. Illustrates and describes the line construction and rolling stock of two 6000-volt single-phase catenary lines. 1000 w. Elec Ry Jour—Sept. 4, 1909. No. 7545.

The Application of Single-Phase Current to the Borinage Railway (Application du Courant monophasé au Chemin de Fer vicinal du Borinage). P. Rodigas. Illustrated description of the lines, equipment, etc. Soc Belg e'lecs—April, 1909. No. 4815 E.

See also Railway Motors, under ELECTRICAL ENGINEERING, DYNAMOS AND MOTORS.

Speed Recorders.

A Calibrated Speed Recorder. A. B. Stitzer. Illustrates and describes a speed recorder adapted for electric traction work, making a record that can be read without a correcting factor. 1500 w. Pro Engrs' Club of Phila—Jan., 1909. No. 6358 D.

Spokane.

Electric Railways in and About Spokane. Illustrated descriptions of the track
STREET AND ELECTRIC RAILWAYS

St. Clair Tunnel


St. Clair Tunnel.

Electrification of the St. Clair Tunnel. Illustrated detailed description of the tunnel, equipment, etc. 6000 w. Elec Ry Jour—Nov. 14, 1908. No. 235.

Stray Currents.


Substations.

See same title, under ELECTRICAL ENGINEERING, TRANSMISSION.

Subways.


The Bowling Green Improvement of the New York Rapid Transit Railroad. Illustrates and describes changes between Bowling Green station and South Ferry, made necessary by the maximum Brooklyn traffic. 3000 w. Eng Rec—March 13, 1909. No. 3106.

Progress on the Bridge Loop Subway Illustrates and describes work on the loop which will connect Brooklyn Bridge terminal with the Manhattan and Williamsburg bridge terminals. 3500 w. Eng Rec—March 27, 1909. No. 3537.

Progress on the Subway Bridge Loop, New York. Illustrates and describes recent work on this loop which will connect the Brooklyn and Williamsburg bridges in Manhattan. 2500 w. Eng Rec—June 26, 1909. No. 6001.


The Hudson and Manhattan Tunnel System. J. Vipond Davies. A detailed review of the history of the tunnel projects, the organization and work plants are given in the present number. 5000 w. R R Age Gaz—Sept. 17, 1909. Serial. 1st part. No. 7799.


Accounts of the London Tube Railways. A detailed analysis for the year ending June 30, 1908. 2500 w. Electr'n, Lond.—Dec. 11, 1908. No. 1209 A.

The Metropolitan District and Allied Tube Railways. Illustrated account of the methods and working of the Metropolitan District Railway and three underground electric lines in London. 6000 w. Tram & Ry Wld—Aug. 5, 1909. No. 7131 B.

STREET AND ELECTRIC RAILWAYS

Subways


Extensive Engineering Undertaking. Information from the report of the Royal Commission appointed by the Government of New South Wales to suggest the best practical method of establishing direct communication between the northern and southern sides of Sydney Harbor. Recommends an electric tube railway. Map. 2500 w. Aust Min Stand—April 7, 1909. No. 4619 B.

See also Caissons, and Reinforced Concrete, under CIVIL ENGINEERING, CONSTRUCTION.

Subway Signaling.

Time Speed Control Signals. George S. Hodgins. Describes the plan for governing approach trains to the 96th st. station of the N. Y. subway, which is a combination of the automatic stop and the time-lock principle. Ills. 3000 w. Ry & Loc Engng—Aug., 1909. No. 6869 C.


Subway Stations.


Surface Contact.

The “G. B.” System from a Tramway Manager’s Point of View. Stanley Clegg. Read before the Inst of Elec. Engrs. Describes the system as installed at Lincoln, giving the writer’s experience of it under working conditions. 7500 w. Elec Engr, Lond—Jan. 15, 1909. No. 2061 B.


The Suchostawer Stud System. Illustrated description of a surface contact system for electric traction where a skate suspended from the motor comes in contact with a series of studs. 1500 w. Engng—May 28, 1909. No. 5263 A.

Switzerland


The Martigny–Châtelard Electric Railway (Elektrisch betriebene Bahn Martigny–Châtelard). S. Herzog. Illustrated detailed description of this mountain line which includes stretches on both the adhesion and rack systems. Serial. 1st part. 1000 w. Elektrotech Rundschau—Dec. 5, 1908. No. 1993 D.


The Chamonix Martigny Electric Railway. C. Van Langendonck. Illustrated description of a narrow-gage line through the Alps from France into Switzerland. 1000 w. R R Age Gaz—April 30, 1909. No. 4369.

The Seebach-Wettingen Railway (Seebach-Wettingen). W. Kummer. Technical and economic results of tests of electric traction on this line. Serial, 1st part. 1700 w. Schweiz Bau—July 24, 1909. No. 7283 B.

Standards and Principles for the Electric Operation of the Swiss Railways.
STREET AND ELECTRIC RAILWAYS

Switzerland


Choice of Frequency for the Alternating Current Railways of Switzerland (Choix de la Frequence pour la Traction par Courant alternatif des Chemins de Fer suisses). W. Kummer. A summary of the considerations which influenced the Swiss Commission to adopt a frequency of 15 periods per second. 2500 w. Bul Tech d l Suisse Rom—May 10, 1909. No. 5734 D.


Terminals


Express Depot, Vault and Stables at Utica, N. Y. Illustrates and describes the express and freight station, a fireproof vault for storing tickets and records, and model stables. 2500 w. Elec Ry Jour—Sept. 4, 1909. No. 7544.

Test Cars

Special Testing and Repair Cars. Illustrated descriptions of two examples of special cars in service in Vienna and in Marseilles. 1500 w. Tam & Ry Wd—June 3, 1909. No. 5595 B.

An Electric Street Railway Test Car (Ein elektrischer Strassenbahnmesswagen). R. Schengeth. Illustrated description of the car used in Cologne and its equipment. 1600 w. Elek Kraft u Bahnen—April 3, 1909. No. 5662 D.

Ties


See also same title, under RAILWAY ENGINEERING, PERMANENT WAY AND BUILDINGS.

Track Circuits

Suburban Electric Railway Return Circuits. E. G. Hindert. Discusses the importance of good contact, types of bonds, testing, etc. 3000 w. Elec Age—Dec., 1908. No. 1220.

Track Construction

Method of Constructing Concrete Foundation for Street Railway Track Using a Special Mixer Mounted on a Car. Illustrated description. 700 w. Engng-Con—Nov. 4, 1908. No. 119.


See also Pavements, under CIVIL ENGINEERING, MUNICIPAL.

Track Maintenance


STREET AND ELECTRIC RAILWAYS

Tracks


Track Specifications.


Traffic Problems.

City Railways (Städtebahnen). Herr Blum. A discussion of their traffic and transportation problems. 5500 w. Glasers Ann—July 1, 1909. No. 7298 D.

Train Acceleration.


Trains.


Trolley Lines.


Some Details of Overhead Construction. E. Goolding. Describes points of interest in recently executed work. IIs. 1500 w. Tram & Ry Wld—June 3, 1909. No. 5596 B.

Trolleys.


Derailment of Trolleys in Rounding Curves (Remarques sur les Cas de Déraillement des Perches de Trolley en Sys-

Trunk Lines

Trolley Wires.


Trucks


Trunk Lines


Some Comparisons of Continental and British Methods of Operating Tramways. A. R. Fearnow. A discussion of types of cars used, and considers the bow collector a better arrangement than the trolley boom. 2500 w. Elect'n, Lond—Sept. 24, 1909. No. 8344 A.

Electric Truck Lines (Bahntechnische Forderungen an den elektrischen Vollbahnbetrieb). Artur Heuschka. Discusses the problems of applying electric traction to trunk line operation. IIs. Serial. 1st part. 3500 w. Zeitschr d Oest Ing u Arch Ver—Dec. 4, 1908. No. 1979 D.

The Electrical Operation of Trunk Lines from a Military Point of View (Die
STREET AND ELECTRIC RAILWAYS

Trunk Lines

Aussichten des elektrischen Vollbahnbetriebes mit besonderer Berücksichtigung der militärischen Bedenken. R. Rinkel. With special reference to conditions in Germany. IIs. 2800 w. Elek Kraft u Bahnen—May 24, 1909. No. 5953 D.


Tunnels.

Electric Traction in the Cascade Tunnel of Great Northern Railway (U. S. A.). Brief illustrated description. 1000 w. Tram & Ry Wild—April 1, 1909. No. 3986 B.

United States.


Wire Suspension

Voltage.


Wheel Guards.

See Car Fenders, under STREET AND ELECTRIC RAILWAYS.

Wires.

Tensile Strength of Trolley Wires. J. E. Fries. Information concerning metals that might be used, and concerning the stringing of such wires. 2000 w. Elec Age—Dec., 1908. No. 1228.

Wire Suspension.

Catenary Trolley Construction. Discussion of a paper by Oliver S. Lyford. IIs. 8000 w. Pro Am Soc of Civ Engrs—Oct. and Nov., 1908. No. 649 each E.

Experimental Overhead Trolley Construction of the Pennsylvania Tunnel and Terminal Railroad. An illustrated account of this expensive experimental work on the test line on Long Island. Also editorial. 6500 w. Elec Ry Jour—Dec. 12, 1908. No. 918.

Cost and Construction of Overhead Work. E. Golding. Presents a table of costs to facilitate the estimating for overhead work, with explanatory notes. 1500 w. Elec Rev, Lond—Nov. 20, 1908. No. 732 A.

See also Trolleys, and Wires, under STREET AND ELECTRIC RAILWAYS.
COMPLETE COST-KEEPER

By HORACE L. ARNOLD

THIS book is designed to give such an exhibition of widely-differing systems of cost-keeping now in satisfactory use as will afford any manager, although not himself an accountant, the knowledge needful to an intelligent comparison between his own methods and cost-keeping methods in general.

It presents different original cost-keeping systems, varying in complexity from one so simple that the entire history of each production order is recorded on a single printed form, up to some of the most elaborate methods known, by which any desired degree of minuteness in subdivision of accounting can be obtained.

Every step in the use of the several systems is minutely detailed, and when the factory production is separated from the purely commercial operation of disposing of the factory product, the commercial books are also described, and in all cases the number of men at work, and the number and class of bookkeepers, clerks, messengers, time-takers, and so on, employed in cost accounting is given, so that any manager can tell about what he may expect the use of a similar system to cost in his own establishment.

CONTENTS BY CHAPTERS

I. The Necessity for the Factory
II. Manufacturers and Commerce
III. A Collective Production Order System
IV. A Simple System for Duplicate Work
V. A General System for Medium-Sized Works
VI. A Complete System for a General Iron Works
VII. An Elaborate System for a Highly Organized Establishment
VIII. A Special Card System for an Electrical Works
IX. The Card System of Accounting
X. General Expense Accounts
XI. Mechanical Aids to Accounting

450 Pages, Octavo, Cloth Binding. $5.00, Prepaid.

THE ENGINEERING MAGAZINE
140-142 Nassau Street, New York
THE FACTORY MANAGER

By HORACE L. ARNOLD

The one aim of "The Factory Manager" is to explain the methods of highly successful factory and shop managers. It tells how they eliminate dead expense; unnecessary fixed charges; friction and delays in handling work; useless help, methods and records; unnecessary time and material; interruptions, "waits" and guesswork; too many handlings of work, etc., and how they arrive at the exact cost of all work done.

There is not a theory in the whole book. Every chapter is a working plan available for immediate use. Every method, every card, every blank form and record book, is in successful use; every one is the result of years of testing, revision, and improvement. All cards, tickets, order-blanks, page or sheet headings, etc., have the size marked, together with the color and kind of paper on which they are printed. Anyone can, therefore, reproduce any form shown and readily apply it to his own business.

The main divisions of the book are Organization and Management; the Office; Purchasing Department; Drawing Office; Production Department; Store Room; Tool Room; Time Records; Receiving and Shipping Departments; Miscellaneous.

The purpose and exact manner of using every method and form are plainly and completely explained, so that everyone can easily understand its purpose and determine its value if applied in his own shop.

"The Factory Manager" tells, in short, the exact means by which others have attained the greatest successes.

CONTENTS BY CHAPTERS

I. FACTORY ROUTINE, ORGANIZATION AND COST FINDING.
II. ADVANCES IN FACTORY ACCOUNTING.
III. COST FINDING SYSTEM OF THE LINK-BELT ENGINEERING CO.
IV. THE FORMS OF THE LINK-BELT ENGINEERING CO.
V. COST FINDING SYSTEM OF THE BIGELOW CO.
VI. THE C. B. COTTRELL & SONS CO.
VII. THE POTTER & JOHNSTON MACHINE CO.
VIII. THE WELLS BROTHERS CO.
IX. THE C. W. HUNT CO.

432 Pages, 6 x 9 inches, Illustrated, Cloth Binding. $5.00, Prepaid.

THE ENGINEERING MAGAZINE

140-142 Nassau Street, New York
EFFICIENCY
AS A BASIS FOR
OPERATION AND WAGES

By HARRINGTON EMERSON

Mr. Emerson's book is not merely the development of a theory of works management. It is the statement of principles applied and results secured in practice. The methods advocated are being used in some of the largest manufacturing and operating institutions in the United States. They have proved their worth and practicality by resultant savings amounting in the aggregate to millions of dollars annually, as proved by the balance sheets of corporations making official report of their earnings and expenses. This volume contains the fullest, and indeed the first complete, statement made of the elements of organization, management, and operation under the Efficiency or Individual-Effort system.

The author has achieved national distinction by his widely-noticed work in reorganizing the Santa Fe shops and his connection in a similar capacity with the American Locomotive Co. His methods for increasing industrial efficiency have been attentively examined by interested managers and specialists East and West. His system of wage payment based on "Efficiency" has been the theme of earnest discussion before the great technical societies.

CONTENTS BY CHAPTERS

I. TYPICAL INEFFICIENCIES AND THEIR SIGNIFICANCE.
II. NATIONAL EFFICIENCIES: THEIR TENDENCIES AND INFLUENCE.
III. THE STRENGTH AND WEAKNESS OF EXISTING SYSTEMS OF ORGANIZATION.
IV. LINE AND STAFF ORGANIZATION IN INDUSTRIAL CONCERNS.
V. STANDARDS: THEIR RELATIONS TO ORGANIZATION AND TO RESULTS.
VI. THE REALIZATION OF STANDARDS IN PRACTICE.
VII. THE MODERN THEORY OF COST ACCOUNTING.
VIII. THE LOCATION AND ELIMINATION OF WASTES.
IX. THE EFFICIENCY SYSTEM IN OPERATION.
X. STANDARD TIMES AND BONUS.
XI. WHAT THE EFFICIENCY SYSTEM MAY ACCOMPLISH.
XII. THE GOSPEL OF EFFICIENCY.

12mo, Cloth Binding, 172 Pages, $2.00, Prepaid

THE ENGINEERING MAGAZINE
140-142 Nassau Street, New York
Kean Street, Aldwych, London, W. C. Price, 7/6
PROFIT-MAKING
IN SHOP AND FACTORY
MANAGEMENT

By CHARLES U. CARPENTER
President Herring-Hall-Marvin Safe Co.

PROFIT-MAKING MANAGEMENT is a concise expression of the methods which Mr. Carpenter has developed and which he constantly uses in his own practice. They have been tried and perfected under the stress of daily operation in the course of his experience as supervisor, manager, head of the labor department, and president, of various large manufacturing plants, notably the National Cash Register Company and the Herring-Hall-Marvin Safe Company, of which latter concern he is now chief executive.

The study of works-management methods will be found to be marked throughout by the clear sight, the fair mind, the direct dealing, and the strong vitality of the author. The whole treatment is vibrant with life, the work indeed having been produced amid the incessant and insistent claims of active work in the management of the great manufacturing company of which he is president and manager. It is inspired by his keen interest in the promotion of better ideals in industrial organization. It is largely a labor of love, freely devoted to the advance of the profession of industrial engineering. And it bears throughout the stamp of tried, practical success.

CONTENTS BY CHAPTERS

I. REORGANIZATION OF A RUN-DOWN CONCERN
II. PRACTICAL WORKING OF THE COMMITTEE SYSTEM
III. REPORTS; THEIR NECESSITY AND THEIR USES
IV. DESIGNING AND DRAFTING DEPARTMENT
V. THE TOOL ROOM; THE HEART OF THE SHOP
VI. MINIMIZING THE TIME OF MACHINE-TOOL OPERATIONS
VII. POSSIBILITIES AttENDING THE USE OF HIGH-SPEED STEEL
VIII. DETERMINATION OF STANDARD TIMES FOR MACHINING OPERATION
IX. STANDARD TIMES FOR HANDLING THE WORK
X. STANDARD TIMES FOR ASSEMBLING
XI. STIMULATING PRODUCTION BY THE WAGE SYSTEM
XII. STOCK AND COST SYSTEMS AS A FACTOR IN PROFIT MAKING
XIII. UPBUILDING OF A SELLING ORGANIZATION
XIV. EFFECTIVE ORGANIZATION IN THE EXECUTIVE DEPARTMENT

Octavo, Cloth Binding. $2.00, Prepaid.

THE ENGINEERING MAGAZINE
140-142 Nassau Street, New York
PROPER DISTRIBUTION
... OF ...
EXPENSE BURDEN

By A. HAMILTON CHURCH

The contents of this book appeared originally in The Engineering Magazine as a series of articles. These at once took rank as a standard reference work on one of the most difficult questions of cost-finding; and a steady and continued demand for the numbers of the Magazine (now out of print) in which they were contained has led to the republishing of the entire group, here revised and adapted for presentation in volume form.

The accurate distribution of general expense is admittedly one of the most perplexing, but yet one of the most important, problems with which the manufacturer must deal. The simple but thorough analysis conducted in this volume, and the clear, common-sense demonstration presented, will furnish a reliable guide to the solution of highly complex conditions in factory accounting.

Much of the published literature in this field has been purely descriptive, and has gone little farther than to present specialized adaptations employed in certain individual shops, and perhaps not well suited to any but the one establishment for which each was designed. Mr. Church's material is of far greater value. He is not concerned with the size, ruling, or printing of forms and cards—matters which should be designed by the accountant to fulfill his special purpose. He goes to the root ideas of cost-finding, and lays down broad principles by which safe and reliable figures may be obtained for machine, piece, and job costs. These principles will properly distribute all expenses of manufacture, marketing, and management, so that the truth may be known as to the profit or loss of any line of product, and changes in manufacturing cost from time to time may be instantly detected and the cause discovered. With increasing competition and increasing complexity of manufactured output this knowledge is indispensable.

CONTENTS BY CHAPTERS

I. INTERLOCKING GENERAL CHARGES WITH PIECE COSTS
II. DISTRIBUTING EXPENSE TO INDIVIDUAL JOBS
III. THE SCIENTIFIC MACHINE RATE AND THE SUPPLEMENTARY RATE
IV. CLASSIFICATION AND DISSECTION OF SHOP CHARGES
V. MASS PRODUCTION AND THE NEW MACHINE RATE
VI. APPORTIONMENT OF OFFICE AND SELLING EXPENSE

12mo, Cloth Binding. $1.00, Prepaid.

THE ENGINEERING MAGAZINE
140-142 Nassau Street, New York
PATENTS AS A FACTOR

... IN ...

MANUFACTURING

By EDWIN J. PRINDLE

THE purpose of this volume is not in any sense to make the inventor or the manufacturer his own patent lawyer. It is rather to convey an idea of the nature of a patent, the protection it may afford, the advantages it may possess for meeting certain commercial conditions, the safety which may be secured in relations between employers and employees, and the general rules by which the courts will proceed in upholding the patent and in thwarting attempted infringements, to show the manufacturer, in a general way, what may be accomplished by patents, but not to lead him to attempt such accomplishment without legal advice.

The design is especially to lay down the fundamental principles so that they may be grasped clearly and fully enough to direct rightly the course of the inventor, patentee, or manufacturer in the early steps which are usually taken before the advice of counsel is secured. With these points clearly in mind, the procedure may be carried forward so as to avoid the most common pitfalls, and the reader may be clearly warned when and where it is necessary to call in expert advice.

To the inventor and the patentee the most significant portion will be the clear outline of the precautions which should be taken in the preliminary steps, the rules and principles by which safe advance may be made up to a certain point, and the demonstration of the great advantage as well as the necessity for securing competent legal assistance in carrying the matter through the Patent Office. To the manufacturer, equal or greater significance will appear in the demonstration of the great commercial advantages which may be secured by proper use of patents in the shop, in dealing with employees, in the sales office, and indeed in the creation and pre-emption of valuable markets.

CONTENTS BY CHAPTERS

I. INFLUENCE OF PATENTS IN CONTROLLING A MARKET
II. SUBJECT, NATURE, AND CLAIM OF A PATENT
III. WHAT PROTECTION A PATENT AFFORDS
IV. OF INFRINGEMENTS.
V. PATENTING A NEW PRODUCT
VI. PATENT RELATIONS OF EMPLOYER AND EMPLOYEE
VII. CONTESTS BETWEEN RIVAL CLAIMANTS TO AN INVENTION

12mo, Cloth Binding. $2.00, Prepaid.

THE ENGINEERING MAGAZINE
140-142 Nassau Street, New York
METHODS OF

THE SANTA FE

By CHARLES B. GOING

THIS book embodies a comprehensive description of the character, details, shop administration and results of manufacturing policies that save $3,000,000 a year in the Mechanical Department of the Santa Fe.

It is based on a thorough study, covering all important shop points on the line and aided by every opportunity to get facts, figures and illustrations, from the men's point of view as well as the officials'.

The features of interest are especially the betterment of machine-tool equipment and operation, standardization and scheduling of all work, a remarkable scheme for despatching jobs on the shop floor, a unique stores system, an advanced and effective application of the bonus wage plan, and individual provisions for apprenticeship that are of wide general interest.

CONTENTS BY CHAPTERS

I. Peculiar Problems of the Road and Their Solutions.
II. The Stores-Keeping, Shop-Order and Works-Order Systems.
III. Manufacturing Policies for the Economical Maintenance of Motive Power.
IV. Administration, Supervision and Extension of the Bonus System.
V. The Apprentice System, and Relations with Employees.

Octavo, Cloth. $1.00 Prepaid

THE ENGINEERING MAGAZINE

140-142 Nassau Street, New York
Kean St., Aldwych, London, W. C. Price 4/6