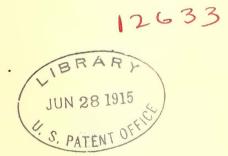
Electric Railway Journal

66

Volume XLV January to June, 1915



7015

Instructions for Use of Index

This index is essentially a subject index, not an index of titles, and articles treating a number of different subjects are indexed under each subject. In addition, a geographical reference is published wherever the article relates to any particular railway company. The geographical method of grouping serves to locate in the index any article descriptive of practices, conditions, events, etc., when the searcher knows the name of the electric railway to which the article refers. Groupings are made under the names of the city in which the main office of the company is not the names of the railways, which appear in alphabetical order. An exception is made in the case of electrified sections of steam railroads, such entries being made direct under the name of the railroad.

In the subject index, the alphabetical method is followed, and if there is a choice of two or three keywords the one most generally used has been selected, cross references being supplied. Below will be found a list of the more common keywords used in the index. This list has been subdivided for convenience into sixteen general subjects, but the general subject headings, shown in capital letters, do not appear in the body of the index. As an example, if a reader wished to locate an article on power-driven motor trucks he would obviously look in the list under the general subject "vehicles," and of the four keywords that appear under this only "Commercial Vehicles" could apply to the article in question. The reader would therefore refer to this keyword under "C" in the body of the index.

CLASSIFIED LIST OF KEYWORDS

ACCIDENTS AND LEGAL

Accidents (including wrecks) Accident claim department Legislation Legal Public service commissions Public service corporations

CARS

Car design
Cars (descriptive)
Cleaning of cars
Gasoline cars
Lubrication
Heating of cars
Lighting of cars
Storage battery cars
Tower cars
Ventilation of cars
Work cars
Wrecking cars

CAR EQUIPMENT

Axles
Bearings
Brakes, air
Controllers and wiring
Couplers
Current-collection
Fenders and wheel guards
Gears and pinions
Headlights
Journals
Motors
Trucks, car
Wheels

EMPLOYEES

Employees Strikes

FARES

Fare collection (including apparatus)
Fares
Freight rates
Through routes and joint rates
Tickets
Transfers

FINANCIAL AND STATISTICS

Accounting Appraisal of railway property Financial Franchises Maps Operating records and costs Statistics Traffic investigations, cities

HEAVY ELECTRIC TRACTION

Heavy electric traction High tension d.c. railways Interurban railways Lucomotives Single-phase railways

MAINTENANCE OF EQUIP-

Cleaning of cars
Inspection of cars
Maintenance records and costs
Paints and painting
Repair shop equipment
Repair shop practice
Repair shops
Tests of equipment
Washing of cars
Welding, special methods

OPERATION

Dispatching trains
Multiple-unit trains
Operating records and costs
Passenger handling records
Rules
Schedules and time tables
Signals
Stopping of cars
Telephones
Trailer operation
Yards

POWER

Boilers and equipment Cables Catenary construction Converters Energy consumption Overhead construction Poles Power distribution Power generation Power stations Purchased power Storage batteries Substations Transmission lines Trolley wire Turbo-generators and equipment

RECORDS

Maintenance records and costs Operating records and costs Passenger handling records Record forms

STRUCTURES

Bridges Carhouses Freight stations Power stations Repair shops Terminal stations and terminals Waiting stations

TRACK

Pavement
Rail joints and bonds
Rails
Ties
Track construction
Track maintenance

TRAFFIC

Advertising
Freight and express
Parks and pleasure resorts
Public, relations with
Publicity
Routing of Cars
Signs on cars
Traffic investigations, cities

VEHICLES (not on tracks)

Commercial vehicles Motor buses Service and tower wagons Trackless trolleys

MISCELLANEOUS

Fire protection and insurance Lightning Loading limits for cars Municipal ownership Organiation charts Public, relations with Standardization Storerooms Timber preservation

In addition to the groups of articles covered by these headings the papers and reports from railway associations and technical societies are grouped under the names of the various organizations. Proceedings of other associations are indexed only in accordance with the subject discussed. The heading "Cars" includes all extended descriptions of individual types of cars, but short accounts of cars displaying no important innovations appear only under the name of the railway to

which they apply. Under the headings "Financial" and "Statistics" appear all articles relating generally to capitalization, earnings and operating costs, as distinguished from the detailed and highly subdivided figures that are entered under "Operating Records and Costs." Short descriptions of machine tools appear only under the heading "Repair Shop Equipment" and are not indexed alphabetically, because of the wide choice in most cases of the proper keyword.

INDEX TO VOLUME XLV S BY WEEKS Accidents: (Continued) Damaged autor repoint. American Florida American F

PAGES BY WEEKS	Accidents: (Continued)	American Electric Railway
Jan. 2pages 1 to 82	——Damaged autos repaired in railway's shops,	-Mid-year meeting (Contine President Wilson's
Jan. 9 " 83 to 124	——Detroit, for 1914, 356 ——Detroit United Ry., 205	Comments of t ions [Shonts, V
Jan. 16 " 125 to 164	Grade crossing accidents, Possibility of reducing, 407	Cummings], c2 Plans for, 61, 100,
Jan. 23 " 165 to 210	——Graphic comparisons [Dana], *58 ——Important grade crossing, for 1914, 259	Cummings], c2 Plans for, 61, 100, Proceedings, 214, 2 Purpose of, 126 Spirit of the meetir
Jan. 30 " 211 to 264	——Interstate Commerce Commission bulletin,	Spirit of the meetin
Feb. 6 " 265 to 316	348 ——Milwaukee shops, classification, 756 ——Montana Railroad Commissioner's report,	New York office, Activity
Feb. 13	085	——President Allen on publ ——Proceedings issued, 589
Feb. 20	—New York City, November, 119 —New York State, and New Jersey, 311, 605,	New York office, Activi President Allen on publ Proceedings issued, 589 Success of reorganized Work of [Brush], 460 American Electric Railway
March 6 " 447 to 492	8001	American Electric Railway (See Claims Associ
March 13 " 493 to 538	—Operating over broken water main in New York, *1211 —Subway accident in New York City. Short-	American Electric Railway
March 20 " 539 to 610	circuit in high-tension cables, 95; Com- ment, 85	Committees:
March 27 " 611 to 656	-Third Avenue R. R., New York, 1913-1914,	Accounting, Meetin Block signals, Meet
April 3 " 657 to 698	Accountants' Association:	Electrolysis, Meetin Equipment, Meeting
April 10 " 699 to 740	Committees: 630 Education correspondence course pro-	Lightning protection Power distribution,
April 24 " 783 to 824	gress, 630 Education, Meetings, 589, 630	713, 889, 938, 9
April 24 100 to 024	Standard classification of accounts, Meeting, 293	Power generation, 1032 Standards, Meeting
May 1	Accounting:	Transportation-enging Way matters, Meeti
May 15 " 917 to 966	——Analyzing the balance sheet [Hixson], 1112 ——Electric light & power [Small], 1113 ——Progress in 1914, 9	American Electric Railway
May 22 " 967 to 1012	Accounting and mechanical departments, Rela-	ciation:Committee meetings, 38
May 29 " 1013 to 1054	tion between, [Hemming], 1153 Advertising:	——Convention plans, 188, ——Dues reduced, 510; Con American Electric Railway
June 5 " 1055 to 1098	Railroads, Comments, 1013, 1043 Safety-first campaigns, *39	Traffic Association:
June 12 " 1099 to 1140	——Syndicated anti-railway news, *462; Comment, 449; [Waters], c 586	Committees: Block signals, Mee
June 19	Akron Ohio:	713 Claims, Joint comm
June 26	— Jitney Bus, 650 — Northern Ohio Traction & Light Co.: Accidents for 1914, 206	Fares and transfers Passenger traffic,
	Accident prevention work, 282, *332	Meetings, 139,
A	Parcel checking, 533	Rules, Meeting, 379 Schedules and time
Accident claim department:	Accident prevention work, 282, *332 Annual report, 1002 Parcel checking, 533 Albany, N. Y.: —Albany Southern R. R.: Annual Report, 527 —United Traction Co.	Training of emplo 713; Data shee
——Attorney's view of the accident question [Hoover], 461 ——Automohile accidents, Handling [Mills], 1203		Transportation-engin
Automobile accidents, Handling [Mills], 1203 Ruling on accident reports, Interstate Com-	Hearing on improvements, 206 Service hearing, 1048 Service order, 156, 260, 951, 1007	—Midwinter convention, —Status of the engineer, Comment, 361 American Public Utilities Co
merce Commission, 883 —Prevention of Accidents:	Service order, 156, 260, 951, 1007 Stepless car experiment, 1049	Comment, 361
Accident savings divided, 818	Alberta, Canada: —Public Utilities Commission, Creation, 1088	MICH.)
Boston Elevated Ry., 281; Record, 399 "Brass Band in Safety Movement," 658	Alexandria, La.: Southern Traction & Power Co.:	American Railway Association—Spring session, 985
[Brush], c845 Instruction of employees, Effect upon	Offer to sell city property. 1177 Service abandoned, 1088; Recommenced,	American Railways Co. (See American Railway Engineer
accident record, New York State Rys. [Lawson], 367	1219	—Convention proceedings, American Railway Master
Insull traction lines, Best "safety-first" design, 99	Allentown, Pa.: —Lehigh Valley Transit Co.:	tion:Convention, 1115; Com
design, 99 Kentucky Traction & Terminal Co. [Bacon], c *292 Machine guards in Milwaukee Elec. Ry.	Annual report, 306 Brackets for carrying lifting jack under	Plans for annual meeting
Machine guards in Milwaukee Elec. Ry. shops, *756	side sill [Branson1, *191 Trolley wire pick-un [Branson1, *295	American Society of Mecha- Boiler code approved, 3
shops, *756 Making safety movement permanent [Schneider], [Scott], 800 Montreal, Safety first savings, 165	American Cities Co. (See New York City) American Electric Railway Accountants' Asso-	Chicago meeting, Heavy cussion [Batchelder
Moving pictures, 36	ciation (See Accountants' Association) American Electric Railway Association:	American Telephone & Tele
Moving pictures of Public Service Co. N. J., *98 National electrical safety rules, pre-	—Code (See Code of principles) —Committees:	American Wood Preservers'
	Appointments for 1915, 139 Appointments for all associations, 1914-	Annual convention, 181 Anderson, Ind.: ——Union Traction Co.:
Newspaper advertising, 39	1915, 59 Brady medal, Report, *239, 281; Com-	Union Traction Co.: Copper zone fare
Newspaper advertising, 39 Northern Ohio Traction & Light Co, 282, *332 Publicity for Safety-First Movement, c 717 Debte Service B. 282	ment 211	652 Flange-bearing spec
c 717	Education, 61, 101, 317, 889 Executive, Meeting, 240, 938 Line construction (See National Joint	New publication, 82
Public Service Ry., 282 Relation, accidents to length of service,	Committee)	Note issue, 1005 Annapolis Short Line:
Relation, accidents to length of service, Bay State Street Ry., *709 Results of safety work [George], 794 Safe method of cutting concrete pave- ment [McKelway], *993 Safety [Webster], 458; Discussion, 455 Safety methods of various companies.	Motor vehicle, appointment, 418; Meeting, 589; Report, 619; Comment,	Conversion from 6600 1200-volt d.c. ope
Safe method of cutting concrete pave- ment [McKelway], *993	Public relations, Meeting, 240	ruption of ser
Safety [Webster], 458; Discussion, 455 Safety methods of various companies,	Sectional associations, Meeting, 139 Subjects, Meeting, 241	Appraisal of railway proper
Safety methods of various companies, Award of Brady medal, *239, 281; Comment, 211	Valuation, Meeting, 101 ——Company Sections:	——Chicago elevated railwa ——Cincinnati Traction Co.
Safety rule hook of Chicago Elevated Ry., Comment. 83	Chicago, 796, 1075 Denver, Meeting, 293, 418, 798, 1033,	——Detroit United Railway ——Federal valuation conf
Safety-first movement: Chicago & Joliet Electric Railway,	1210	ton, 509 ——Ohio, Divergent views
934	Initiative. 699 Manila, P. I., 337, 380, 673, 798, 1033, 1211; Officers, *510	253 ——Omaha & Council Bluff
In Chicago [Brownell], 749 In Manila, 1120 Organized Safety [Palmer], 936	Milwaukee, Meetings, 380, 418, 673, 986;	— Utility appraisals [Sau — Washington & Marylar
Review of work done by railways,	Officers, *100 Newark, Meetings, 380, 418, 759, 986,	costs and added pe
Room for intelligent study, 1100	Pamphlet on advantages, 338	Argentine Republic:
Safety leagues, 38 Safety work [Elliott], 97	Practical experience [Whitney], c511 Programs for winter work 1	——Bucnos Aires, Effect of ——Central Argentine Rail
Too much publicity given, 658 School children, parents and teachers,	Washington, Meetings, 419, 713, 759, 798, 889, 1033	High tension d.c. to ——New railroad planned,
Talks to, in various citics, 35 Stevens bill in Congress, 252	——Convention plans, 889, 938 ——Mid-year meeting:	Arkansas Association of Pul
Accidents:Akron, Ohio, 206	Banouct, Addresses at 1 Peirce, Sherley, Montague, Henry J. 219: [Allen], 280	Association of Technical Meeting, 419
anion, onio, soo	(Abbreviations: *Illustrated, c Correspondence.)	

(Abbreviations: *Illustrated, c Correspondence.)

Association: tinued 25 277 275; s address 278; Opin-Williams, Budd, Clark, 290 , 139, 187 219, 220, 223, 275, 280 ing, 211, 266 33, *1075 vity, comments, 611 blicity, 632 association, 166 Claims Association: ciation) Engineering Associaing, 379 eting, 139, 293 ing, 889 ngs, 241, 798, 986, 1032 ion, 101, 630 n, Meetings, 293, 510, n, Meetings, 293, 510, 986 , Meetings, 241, 986, g, 241 ineering, Meeting, 418 ting, 418, 1210 Manufacturers' Asso-380 510 omment, 493
y Transportation and eeting, 139, 293, 589, mittee, Meeting, 759 rs, Meeting, 759 rs, Meeting, 798 . Data circular, 379; 9, 798 me tables, Meeting, 759 oloyees, Meetings, 630, eet, 337 gineering, Meeting, 418 ctrical Engineers: , 369, 378 rr, Discussion on, 378; Co. (See Grand Rapids, ion: ee Philadelphia, Pa.) ering Association: gs, 570, 629 r Mechanics' Associanment, 1099; Exhibits, ting, 137
nanical Engineers:
. 377
vy electric traction dister, Gossl, 982
legraph Company:
ents, 613
rs' Association:
81, 237 system, 310; Report, ecial work [Mitchell], 820 00-volt single-phase to peration without inter-ervice, *542 neters, *722 perty: ways, 110 co., 391 ay, 198 onference in Washingon valuation matters, iffs Strect Ry., 252 nunders], 984 and Ry., Reproduction percentages allowed hy — Central Argentine Railway:

High tension d.c. tap-field motors, *679

New railroad planned, 985

Arkansas Association of Public Utility Operators:

litney discussed by President, 1023

Association of Technical Society Secretaries,

Meeting, 419 of war, 345

IV Atlanta, Ga.:

—Georgia Railway & Power Company:
Annual Report, 905
Passes discontinued, 158
Publicity work, 111
Schedule reduction, 77
Seating capacity, Decision by State
Railroad Commission, 354
Atlantic Shore Electric Ry. (See Sanford, Me.)
Augusta, Ga.:

—Augusta-Aiken (Ga.) Railway & Electric Co.:
Fare increase, 1050
Fare matters, 77, 118, 159
Aurora, Elgin & Chicago R. R. (See Wheaton, III.)
Australia: Australia:
—Melbourne: Plan to replace cable by electricity, 597
Austin, Texas:
Flood accident, *978 Austria:

— Flood accident, *978

Austria:

— Vienna Municipal Tramways:

 Motor buses, *49, *51
 Snow removal with trailer wagons. Car
 scraper practice [Spängler], *591
 Wagous hauled by trolley cars, 637

— Vienna-Pressburg single-plase railway [Seefchlner], *628; Comments [Archbold],
 [Harte], c 989

Auto buses (See Jitney bus, See Motor buses)
Automobile industry and its effect on the interurban railway, 448 B Bakersfield, Cal.:

—San Joaquin Light & Power Corporation:
Bond issue, 1004
Baggage, Is free handling a traffic error?
[Laney], 412; Discussion, 411; Comment, 405
Balance weight system in San Francisco, *977
Ball bearings on storage battery cars [Farr], *344
Baltimore, Md.

—United Railways & Electric Co.:
Annual Report, 857
Cars, Prepayment, with fully inclosed platform, *86
Maintenance costs—Reducing by proper handling of equipment hauser], 384; Comment, 406
Pension system, Results for one year, 172
—Washington, Baltimore & Annapolis Electric -Washington, Baltimore & Annapolis Electric Railroad: Railroad:
Annual report, 1045
Bangor (Me.) Railway & Electric Co., Bond issue, 199
Barre & Montpelier Traction & Power Co., (See Montpelier, Vt.)
Baton Rouge, La.:
—Baton Rouge Electric Co., Note issue, 815
Bay State Street Ry. (See Boston, Mass.)

Baton Rouge Electric Co., Note issue, 815
Bay State Street Ry. (See Boston, Mass.)
Bay State Street Ry. (See Boston, Mass.)
Bearings:

—Motor-axle, choice of different metals
[Vulcan]. 760

Motor-axle, Home-made cast-iron [Lewis],

*760

—Tri-City Railway shop practice [Suther-land], *944

Berkshire Street Ry. (See Pittsfield, Mass.)
Berlin (See Germany)
Binghamton (N. Y.) Rys.:

—Annual report, 482

Birmingham, Ala.:

—Birmingham, Ensley & Bessemer Ry., Receivership, 437

Birmingham-Tuscaloosa Railway & Utilities Co.
(See Tuscaloosa, Ala.)

Boilers and Equipment:

—Plant of Havana Electric Railway, Light & Power Co. [Ricker], *920

—Pational unit for rating of, 363

—Rational units for the boiler room [Stott],

c 468; Comment, 447

—Standard specifications for design and construction, American Society of Mechanical Engineers, 377

—Use of powdered coal, Comments, 1014

Boise, Idaho:

—Idaho-Oregon Lt. & Pr. Co.

Reorganization, 772 —Use of powdered coal, communications.

—Idaho-Oregon Lt. & Pr. Co.
Reorganization, 772
Foreclosure decree, 907
—Jitney bus ordinance, 397

Boston, Mass.:

—Ambulance chaser fined, 356
—Bay State Street Ry.:
Wage arbitration, 76, 150, 200, 268, 303, 346, 433, 477, 708, 854, *1019, 1205; Comments, 870, 1190; [Richey], c 758
Chemical engineering practice, 90; Communications. Comments, 870, 1190; [Richey], c 758
Chemical engineering practice, 90; Comment, 84

—Bill providing for replacement of Charlestown elevated line hy subway, 857

—Boston Elevated Ry.
Cars, Center-entrance trailer, *99, *1154
Complaint handling, 26
Dispatching cars [Dana], *802
Safety methods, 281
Safety record, 399
Zone system of fares considered [Bancroft], c 890.

—Cambridge subway extension, 113

—Massachusetts Electric Companies, Annual report, 254

Boston, Mass.: (Continued)

—Report of public service commission, 809

—Suggested 6-cent fare, Comments on, 783

—Toll charge abolished for East Boston tunnel, 686

—Transfer charge, 77

—Transportation bills, 433

—West End Street Railway

Common stock issue, 647, 732

—Boston & Worcester Street Railway:

Tie treating plant, *678

Brady-safety medal, Award of, *239, 281; Comment, 211; Presentation, 338

Brakes: -Brake shoe report by M. C. B. committee, -Clasp brakes, report by M. C. B. committee, 1163
-Flectric, [Sprague], c1076
-Electric regeneration from direct current motors, Comment, 918
-New York Municipal Railway cars, *872
kes, Hand:
-Light-weight seared (National Probability) Brakes, Hand:
—Light-weight geared (National Brake Co.),
*517 — Light-weight geared (National Brake Co.),

*517

Braking, Regenerative (See Energy consumption)

Prantford, Ont.:

— Municipal operation prevented by lack of legal authority, 597

Brill Co., J. G., Annual report, 393

British Columbia Electric Ry. (See Vancouver, B. C.)

Brookfield, Mass.:

— Warren Brookfield & Spencer Street Railway, Sale, 773

Brooklyn, N. Y.:

— Brooklyn Rapid Transit Co.:

Advertising contract terminated, 912

Advertising to be managed by railway, 1007, 1227

Attaching signal wires to third-rail [McKelway], *1038

Car-full signs, 532

Complaint handling, 26

Cutting concrete, safely [McKelway], *993

Derailments from worn flanges [Will-Cutting concrete, safely [McKelway],
*993
Derailments from worn flanges [Williams]. *1037
Elevated lines and the depreciation of
property value [Williams], 71
Employees, Welfare work for, 454
Fender controversy, 827, 1220
Folding box to guard public against
welding arc [Williams], 847
Garment dryer, Electric [Shannon],
*300
Insurance, 435
Mysterious derailments [Williams],
1078
New cars, Sea Bcach Line, 651
New subway opened, 1218
Objection to order for new route, 400
Pine ties reused after service of 21
years [Cram], 295
Publicity pamphlets, 205
Pump for manholes, Power-driven drainage, *247
Rail life on curves. Comparison of
open-hearth and manganese steel
[Bcrnard], 383
Safety report for employes, *1196
Service hearings, 108, 158, 532
Splice ears in overhead construction,
1041
Submarinc cable installation, *805
Track tools. supplies and appliances Spince cars in overhead constitution, 1041
Submarinc cable installation, *805
Track tools, supplies and appliances
[Cram], 1169
Warning signs to protect new paving work [Cram], *893
—Marginal railroad bill signed, 1088
—New York Municipal Railways. (See New York City)
—Speed control for subway, 72
—Transfer order, 356
Buffalo, N. Y.:
—Buffalo & Lake Eric Traction Co., Fare increase, 119
—International Traction Co., Annual report, 1131
—Historical sketch of street and electric rail-—Historical sketch of street and electric railway development [Dickson], 135
—International Railway:
Buffalo-Niagara Falls line, 302
Capitalization, Elimination of excess, 153
Compleints in legal form, 200 Capitalization, Elimination of excess, 153
Complaints in legal form, 399
Construction improvements, 251
Fare changes, 441
Traffic decrease, 260
—Service matters, 206
Buffalo, Lockport & Rochester Ry. (See Rochester, N. Y.)
Business Conditions:
—[Heulings] 1131
—"Buy it now" movement, 267
—Electric railway conditions on Ian. 1, 1915, 7
—Growing confidence [Byllesby], 350
—Northwest, Outlook in, 152
—Prediction of prosperity, 152
—Prediction of prosperity, 152
—President Wilson's address at meeting of American Electric Railway Association, 217, 275
—Railways and the manufacturers [Tripp], —Regulation, Commen*s, 613 —Report of United States Chamber of Com-merce. *95 —Stock market, Comments, 741

Business Conditions: (Continued)

—Unprecedented opportunities [Farrell], 350
Business courtesy, Reprehensible practice of buyers and sellers, 406
Butte, Mont.:

—Butte Electric Railway, Default on bonds, 688
Butte, Assertic & Butte, Anaconda & Pacific R.R.:

Experiences with 2400-volt locomotives
[Cox], 136

Cab signals (See Signals)
Cable Cars:
—Grip for two-car train, United Railroads,
San Francisco, *977
Cable connectors, Mechanical [Fargo], *1216
Cable fault localizer, Portable (Westinghouse),
*387
Cable Signals (See Signals) *387
Calgary, Can.:
—Municipal Railway finances, 597
California Railroad Commission:
—Pill for regulating public utilities, 253
—Members, 151
Camden, N. 1.:
—Interstate Railways:
Earnings and expenses for 1914, 1004
Stock conversion plan, 731, 956
Canada: Earnings and expenses for 1914, 1004
Stock conversion plan, 731, 956
Canada:

—Commercial and industrial conditions, 883
—Electric railway earnings for 1914, 1179
—Proposals for new lines, 768
—Track built in 1914, 14; Comment, 12
Canton, Mass.:

—Blue Hill Street Railway:

Adjustable stand for forge shop, *997
Fare increase hearing, 863
Increase in fares, 604; suspended, 1226
Carbon brush troubles, [Martindale], 571
Car Design:

—Advantages of single-trucks, 406
—All-steel cars for Eric, 1102
—Baltimore prepayment cars, *86
—Collision results, 568; [Keen], *c715
—Equipment, Progress in, 2
—New Orleans all-steel car, *271
—Progress in 1914, 11
—Scat space per passenger established in New York City, 1094
—Small cars, Advantages of, 967; [Layng], 979; [Wilson], c1206; ["Railway Operator"], 1207
—Steel cars, Growth in the use of all-steel construction, 3
—Steel cars, Chicago Elevated Rv., Stress analysis [Rettger and George], c*291
Car-door operation, Santa Barbara center-entrance car [Llovd], *590
Car propulsion (See Energy consumption)
Car Steps:
—Lighting, New York State Rys., 247
—Lower steps in New Hampshire, 119, 260
Carhouses:
—Evanston, Ill., Railway, *660
—Feeder panel for trolley wires, *1214
—Eigen protection Springfield (Ohio) Ry. rhouses:

-Evanston, Ill., Railway, *660
-Feeder panel for trolley wires, *1214
-Fire protection, Springfield (Ohio) Ry.,
*560
-Holyoke Street Railway Company, *930
-Municipal Railroad, San Francisco, 667
-Seattle Municipal Ry. [Kennedy], *513
-Springfield (Ohio) Ry., *556
-Vancouver, B. C., Fireproof construction,
*227 Cars:

All-service, East Liverpool Traction & Light
Co. [Niles], *765

—Ambulance cars, Trier, Germany [Eichel],
*831

Prepayment with fully-inclosed *831

Baltimore, Prepayment with fully-inclosed platform, *86

Center entrance:
Annapolis Short Line, *547
Wilkes Barre, Pa., *518, *593

Double-deck, front-exit, (Glasgow, *297

Dump cars, Two-way (Universal), *299

Express for Detroit United Railway [Keller],

*848 Express for Detroit United Railway [Keller],

*848

Fire-fighting, Duluth, *472

Front-entrance, center-exit, Cleveland, Ry.,

*364

Hospital, Germany, *50

Jamestown, Westfield & Northern Railroad,
1111

Light-weight (34-ton, 56-ft.) for Toledo, Fostoria & Findlay Railway, *947

Low-floor, California type, United Railroads of San Francisco, *1016

New York Municipal Ry., Motors, control, conduit and collectors, *496

One-man, Winona Ry. [Howard], 233; Comment, 212

Open, steel-underframe, for Public Service Railway, *1171

Salt Lake & Utah Ry., *54

Semi-steel for Kansas City, Metropolitan Street Railway, *850

Statistics of cars ordered in 1914, 16; Comment, 12

Steel:

Erie Railroad, 1102; Comment, 1100

Long Island R R. Ten years' experience

l: Erie Railroad, 1102; Comment, 1100 Long Island R.R. Ten vears' experience, *566; Comment, 539 New Orleans, *270; Comment, 275 Parlor cars for Waterloo-Cedar Rapids, *932 -Three-in-one for repair service [Sherwood], *1121

Cars: (Continued)

—Trailers:
Boston Elevated Ry., Center-entrance,
*99, *1154
Catenary construction: ---Annapolis Short Line, *543 ---Flexible instead of rigid overhead work, 1040 — Michigan Railway's 2400-volt line. Through towns, *1147
— Norfolk & Western Railroad, *1065
Cedar Rapids, Iowa:
— Iowa Railway & Light Company:
— Improvements, in equipment, 855
Census report on electric railways, statistics on cars, traffic, capitalization, income, operating expenses, taxes, operating ratio and employees, 96, 131
Central Electric Railway, Accountants' Association. Central Electric Railway, Accountants' Association.

—Convention, 411, 1112, 1151
Central Electric Railway Association:

—Committees, membership of, 790

—Convention:

Boat trip, 1162, 1201
Papers, 1156, 1201
Proceedings, 455

—Secretary-treasurer's report, [Neereamer], 413
Central Electric Traffic Association: Proceedings, 455

—Secretary-treasurer's report, [Neereamer], 413
Central Electric Traffic Association:
—Annual report of chairman [Neereamer], 460
Chamber of Commerce of United States, Annual meeting, 338
Charles City, Ia.:
—Charles City Western Railway, Electrification, 643
Charlotte, N. C.
—Charlotte Electric Railway, Capital stock reduction, 1003
—Piedmont & Northern Railway, Rotary converter equipment, 633
—Southern Public Utilities Co., Company publication, 440
Chemical engineering, Bay State Street Ry, 90; Comment, 84
Chemical laboratory of Illinois Traction System, [Beagle], 423
Chicago, Ill.:
—Authority of Illinois Public Utilities Commission, 400
—Chicago City Railway:
Annual Report, 645
—Chicago Elevated Railways:
Alleged violation of utilities act, 599
Bond sould, 815
Collateral trust bonds sold, 815
Examination of books, 728
Field-coil impregnation, 640
First-aid stations, 125
Medical methods, [Fisher], *1192
New publication, 952
Preferred dividend passed, 529
Repair shop practice, *551; Comment, 540
Safety rule book, Comment, 83
Steel car, Stress analysis [Rettger and Georgel, e*291 Preferred dividend passed, 529
Repair shop practice, *551; Comment, 540
Safety rule book, Comment, 83
Steel car, Stress analysis [Rettger and George], e*291
Strike, *1165; Comment, 1142, 1189
Valuations, 110
—Chicago Railways Co.:
Expenditures, 112
—Chicago Surface Lines:
Complaint handling, 26
Earnings and expenses, 858
Motor ventilation [Adams], c990
Provision for minority stockholders in merger, 1003
Rail wear B. O. S. E. report, *1195
Report on operations distributed among employees, 825
Safety-first work [Brownell], 749
Service hearing, 486
Service Ordinance, 532
Strike, 1165; Comment, 1142, 1189
Unification upheld by Court, 598
Wage controversy, 952, 1043, 1087, 1128
—Elevated Club, Meeting, 468
—Loop track capacity reached, 399
—Manganese-steel crossing development, *711
—Motor buses, Traction fund for, 348
—Ordinance violations, 305
—Report of Railway Terminal Commission, 1150, Comment, 1141
—Service matters before commission, 205
—Service question, 76, 157, 486
—Service record chart, *366
—Signs, Destination, Legal suits, 77
—Strike of all platform men, 1165; Comment, 1142
—Traction fund disposition, 305
—Traction situation Politics, 126 1142
— Traction fund disposition, 305
— Traction ordinances, 72
— Traction situation, Politics, 126
— Transfer points, Suit to force new, 77
— Ventilating ordinance, 120
Chicago, Lake Shore & South Bend Ry. (See Michigan City, Ind.)
Chicago & Milwaukee Electric Railroad (See Highwood, Ill.)
Chicago, Milwaukee & St. Paul Ry.:
— Electrification of Great Falls (Mont.) terminal, *1172
— Line construction, Four-car platform, *934
— Locomotives, *1072

Chicago & Northwestern Ry., Safety-first movement, 34 ment, 34
Chicago, Harvard & Geneva Lake Railroad (See Walworth, Wis.)
Chicago, Ottawa & Peoria Ry. (See Ottawa, Ill.)
Chicago, South Bend & Northern Indiana Railway Co. (See South Bend, Ind.)
Chicago Surface Lines (See Chicago, Ill.)
Chico, Cal.;
—Northern Electric Proceedings of the Control of the Contro Chicago Surface Edition Chico, Cal.:

—Northern Electric Ry.:
Finances, 114, 435
Reorganization, 773
Children's tickets in St. Louis, 260 —Railless traction in Shanghai, 592 Cincinnati, Newport & Covington Railway (See Covington, Ky.) Covington, Ky.)
Cincinnati, O.:

—Cincinnati Traction Co.
Appraisal, 391
Line extension, 686
Progress of valuation, 598
Service complaints, 78

—Fare case, 77
—Hearing on transit bill, 768
—Loop measure passed, 1043
—Ohio Electric Ry:
Baffle plate for motor axle bearing caps,
[Fox], *424
Franchises granted, Publicity methods,
811 Franchises granted, Publicity methods, 811
Urbana franchise granted, 1220

Ohio Traction Company:
Decision in tax case, 1043
Inventory controversy, 643
Note issue, 773

Plans for improved service through rapid transit board, 727

Rapid transit belt-line project, 152

Rapid transit developments, 250, 348

Rapid transit plans involving use of canal bed. Report on ISwain, Schoeff, 108, 413

Suburban franchise matters, 110

Transit measure approved by Senate, 812
Circuit Breakers:
Reclosing type (Automatic Reclosing Circuit Breaker Co.), *996
Claims Association:
Committees.
Executive, Meeting, 293
Cleaning Cars: Executive, Meeting, 200
Cleaning Cars:
—Practice in various cities, 515
—Use of broom, 625
Cleburne, Texas:
—Cleburne Street Railway, Sale, 955
Clevalend, Painesville & Eastern Railroad (See Willoughby, Ohio) Cleveland. Painesville & Eastern Railroad (See Willoughby, Ohio)
Cleveland, Ohio:

—Air tests in street cars, 533
—Charges against commissioner dismissed, 1128
—Cleveland, Akron & Canton Ry.:
Negotiations for right of way to Dresden, O., 904
Subway terms settled, 1220
—Cleveland Ry.:
Annual report, 350
Carhouse contract controversy, 999, 1087
Cars, Front-entrance, center-exit, for crosstown service, *364
Extensions proposed, 855
Fare matters, 304
Injunction, 641
Presed-steel motors (Westinghouse), *1041
Property holdings, 432
Repair shops, New, *168; [Keen], c290
Report for Nov., 1914, 71
Rush-hour methods, 30
Tax dispute, 198
Wage adjustment, 962
Wireless notice for steamer traffic, 399
—Cleveland Rapid Transit Ry.
Grant approved, 72
—Cleveland, Southwestern & Columbus Railway:
Annual Report, 1045 Cleveland, Southwestern & Columbus Railway:
Annual Report, 1045
Bonds extended, 815
Bond issue, 955
Home-made axle bearing, *760
Reducing paint costs, 847
Testing armature clearance [Lewis], 893
Testing motors [Lewis], 1037

Cleveland & Youngstown Ry.
Freight terminal plans, 1176
Franchise opposed, 1219

Extension subsidized by benefited property owners, 951

Freight subway ordinance, 1178

—Safety zones, 77

—Subway plans, 1087, 1129
Clinton, Ia.

—Iowa & Illinois Ry.
Freight service discontinued, 260
Coasting Clocks (See Energy Consumption)
Code of principles adonted by American Electric Railway Association [Harding], c58
Code of principles: Railway Association [Harding], c58 le of principles: —Address [Williams], 220; Discussions, [Tripp, Brush], 214; Comment, 212 —Changes suggested. Sliding scale of returns to capital discussed. Cooperation urns public utility associations recommended [Crosby], 370; Comment, 362

Coasting records of various railways, *706
Columbus, Ohio:

—Columbus Railway, Power & Light
Courtesy watch fobs for employees, *22
Earnings during 1914, 906
Refunding mortgage, 772
Savings accounts of employees, 119
Sprinkler contract, 819

—Terminal proposals, 1088
Collisions, Results from.

—All steel cars on Long Island Ry., 568
—Semi-steel cars on American Railways
[Keen], *715
Commercial Vehicles:
—Tractor and trailer truck, Kansas City, *516
Company sections (See American Electric Railways Association)
Company section, Individualism of, 362 way Association)
Company section, Individualism of, 362
Compensation law (See Employees, Insurance)
Conduits, Under-water, Preventing condensation
in, Sault Ste Marie, Mich. [Koppel],
*296
Connecticut Valley Street Ry. (See Greenfield,
Mass.)
Constitutional Convention in New York, Recommendations of engineers, 844
Controllers and Wiring:

—Blow-out coil defects [Squier], *591, *635,
*677
—Block to protect controller switch blodes -Block to protect controller switch blades,
[Parsons], *386
-Control system for Belmont Tunnel, New
York City, (Westinghouse), *764, (General Electric), *1124
-Equipment defects [Squier], *102, *140,
*242 —Reverse drums and interlocking mechanism
[Squier], *382
—Rheostatic losses, 287
—Starting-resistance calculations, [Coors], —Time element in notching [Buck], *c672
Convention programs, Possibilities of improvement, 495 Converters: nverters:
—Equipment, Piedmont & Northern Railway,
633
—Phase, Norfolk & Western Railroad, *1061,
Comment, 1057
—Rating, continuous vs. nominal. Proposed
revision of A. I. E. E. standardization
rules, 1142; Comment, 1191 corea:

—Annual report of Railway Bureau, 955
Corrosion, Electrolytic (See Electrolysis)
Corrosion test of pure iron and alloy steel, 1175
Cost figures, Giving publicity to, 743
Costs, value of publishing [Palmer], c 845
Couplers:

—M. C. B. experimental types, committee report, 1164
Covington, Kv., Cincinnati, Newport & Covington, Kv., Cincinnati, Newport & Covington, Ry.:

—Franchise matters, 112, 389, 478, 768, 1000
Crane, Steam-electric, for tunnel work on Michigan Central R. R., *437
Creosote, Statistics of production, 332
Cross arms (See Overhead construction)
Crossing protection, Warning signs ordered in New Hampshire, 1184
Crossings, Track, A. R. E. A. report, 571
Current collection:
—Annapolis Short Line, *550 Current collection:

—Annapolis Short Line, *550

—Roller-Bearing trolley wheels (American Roller Bearing Co.), *966

—Self-lubricating and adjusting trolley wheel and harp, *516

—Trolley base, ball-bearing, (Trolley Supply Co.), *1082

Curtain fixtures without pinch handles (Dayton), *298

Curves (See Track construction)

—(Also see Track maintenance, Rails, Life of) D

Dallas, Tex.:

— Dallas Strect Ry.:

— Welfarc work [Meriwether], 1029

— Investigation of public service corporations planned, 1129

— Jiney bus operation and earnings, 884

— Texas Traction Co.:

Power purchased from Texas Power & Light Co., 1177

— Light Company

Davenport, Ia.:

— Tri-Citv Railway & Light Company

Balanced door mechanism, [Sutherland],

*1038

Bearing practice [Sutherland], *944

New publication, 912

Return circuits [Skelly], 794

Trouble hoard, [Sutherland], *1078

Davton, O.:

Dayton, O.: Oakwood Street Ry, holdings sold, 816

Decatur, Ind.:

—Fort Wayne & Springfield Railway:
Receiver's sale, 529, 1004
Delaware & Hudson Railroad:
—Annual report, 771
Denver, Colo.:
—Denver & Interurban Railroad:
Trail cars ordered, 1136
—Denver Tramway Co.:
Armature-room force, 1215
Experience with coasting clocks, *705
Company section, Meeting, 293, 418, 1210
Complaint handling, 25
Mating gears and pinions, [McAloney], c990
Working hard gears with soft pinions, [McAloney], 803
Depreciation, Based on par value in Nebraska, 1143
Des Moines, Ia.:
Des Moines, Ia.: Des Moines, Ia.:

— Des Moines City Railway:

Cause of thick and thin wheel flanges,
[Lloyd], 1037

Default of interest, 772
Franchise matter, 198, 432
Supplementary motor bus service suggested, 950; Comment, 917

Wage increase, 605

— Hopeful outlook for franchise agreement,
1128

— Jitney bus, 649 1128
— Jitney bus, 649
Detroit, Mich.:
— Detroit United Ry.:
Accidents in 1914, 205, 356
Annual report, 436
Arbitration agreement, 1043, 1087
Freight contract, 1050
Grinding machine for grids [Keller], **64
Interchange decision with Mich. Cent.
R.R., 532
Locomotive and cars for freight service
[Keller], **848
Merit system suggested for employees,
1176
Resolve by city propositions 304 431 1176
Purchase by city, negotiations, 304, 431,
477, 523, 686, 725, 901, 1129, 1219
Results of Safety work [George], 794
Sale to city authorized, 686
Strike, 951, 998; Comments, 969
Temporary trail cars in operation, 961
Tickets sold at Ford plant, 30
Transfer suit decision, 440
Valuations, 198
—Ordinance limiting car capacity, 604
—Traffic report by Barclay Parsons & Klapp,
595, 664
Diesel engine test, 639
Dispatching Trains:

Assignment board in Holyoke carhouse,
*899

By telephone in city service, New York —By telephone in city service, New York State Railways, Rochester [Strong], 885 —Methods in city service, Boston [Dana], Door operating mechanism, balanced [Sutherland], *1038

Double trolley in Seattle, [Kennedy], *128

Draft Equipment:

Report at M. C. B. convention, 1163

— (See also Couplers)

Dual ownership in Alsace, 1217

Dubuque, Ia.:

— Union Electric Co.

Fibre conduit installation for feeder taps, *1125

Soldering torch for commutators, 1079

Duluth, Minn.: Duluth, Minn.:
——Duluth Street Rys.: Fire-fighting car, *472
Franchise upheld by Supreme Court,
346
—Duluth-Superior Traction
Annual report, 954
Dump cars (See Cars, Dump)

E

Earnings, passenger-mile, Recorder for [Bonham], *948

East Liverpool, Ohio:

—East Liverpool Traction & Light Co., Allservice cars (Niles), *765

—Tri-State Electric & Railway Company, Reciver's sale, 647

Economies, minor, on small roads, 898

Edmonton (Alta.) Municipal Electric Ry., Fare rates, 311

Education: Edmonton (Alfa.) Municipal Electric Ry., Farce rates, 311

Education:
—Correspondence courses, American Electric Railway Association, 317
—English, Bettering the use of [Earle], c94; Comment, 83

Educational institutions [Jackson], c93; Comment, 85

Electric Railway Handbook, Review, 583

Electric Railway Journal:
—At Panama-Pacific Exposition, 1155
—Brief for the railways, 1, 447
—Medal of honor awarded, 1141
—New railways, Misdirected letters to, 871
—Review of activities in 1914, 1
—Subjects of greatest interest indicated by subscribers, 52

Electric railways, Functions of [Ralston], 456; Comment, 447

Electrolysis:

—Causes of corrosion in water pipes and other underground structures [Cole], c186

—Concrete poles, Effect of stray current, New York State Rys. [Throop], 294

—Corrosion of metals in natural soils [Rosa, McCollum, Ganz, Waterman], c419

—Discussion [Gerbury], 581

—Joint committee of national associations, Progress, 84

—Springfield, Mass., report, Attitude of railway, 507 ——Springfield, Mass., report, Attitude of railway, 507
Elevated Club of Chicago. Discussion of public relations, 759
Elevated railroads and the depreciation in value of abutting property [Williams], 71
El Paso. Tex.:
——El Paso Electric Railway:
Cheapest car ride in the world, 1050
Empire United Rys. (See Syracuse, N. Y.)
Employees: Empire United Rys. (See Syracuse, N. Y.)

Employees:
—Advertising influence of [Slater], 1029
—Alien labor problem, New York City, 113
—Benefit association at Rockford, Ill., 735
—Bonus system for Milwaukee Electric Ry. & Light Co., 1008
—Bulletins on courtesy, 23
—Connensation bill; In Maine, 856; in New York, 642, 727, 753; In Pennsylvania [Reed], 980, 1130; Rulings in Ohio, 373
—Courtesy toward the public, Efforts on various railways, 20
—Education, Correspondence courses of American Electric Railway Association, 317
—First-aid stations in Chicago, 125 317

-First-aid stations in Chicago, 125

-Group insurance policy, Kansas City, Clay County & St. Joseph Railway, 651

-Handling of men, 266

-Hours, Bills in Ohio Legislature, 392

-Human element in electric railway operation [DeCampl, 1157

-Instruction methods, New York State Rys., Rochester, Effect on accident record [Lawson], 367

-Instructions, Motormen's rules, Baltimore, 385 New York legislation, 318, 390
Wisconsin compensation law, 234

Loans to small borrowers under Morris plan, — Motorman not entitled to engineer's pay,
West Alameda, Cal., 356
— Non-unionism a basis of employment, Kansas decision, 266
— Ohio legislation, 149
— Opportunities in transportation [Bullock],
454 454 Pensions:
Baltimore system, Results for one year, 870, 1190; [Richey], c 758

-Wages:
Conditions in steam railroad car building, 1105
Different industries, 726
Little Rock, Ark., Increase, 159
War time, 825
Youngstown, O., Increase, 735

-Workingmen's compensation (See Employees
—Compensation bill)

-Welfare measures [Welsh], 841

-Welfare work in Dallas [Meriwether], 1029

-Welfare work, United Railways, St. Louis, 693 Energy consumption:

—Ampere-hour meters on Annapolis short line,

*722 *722

Coasting recorders on Third Avenue Railway, *572; Comment, 541

Coasting records, Northern Texas Traction, *1198

Decreased with faster schedules, 869

Effect of meters upon men [Koehler], c633

Experience with coaster clocks in Denver, *705

[Vol. XLV. Energy Consumption: (Continued)
— Inertia effect of moving trains [McAnnix],
c*714; Comment, 699, 825
— Regeneration and electric braking, Comment, 918

Regeneration, Progress in, 495

Regeneration on State Railways of Italy,

*451; Comment, 495

Regenerative braking, 1101; [Sprague], c1076

Results with ampere-hour meters on cars, Chicago & Milwaukee Ry., *973

Saving energy by improved methods of car design and operation [Storer], *286; Comment, 267

Stop-recording device not needed [Koehler], c633

Tests in San Francisco, 1018 — Tests in San Francisco, 1018
— Time element in controller notching [Buck],

*c672
— Use of meter records for comparisons of
motormen, 405, 448
Engineering considerations in a proposed line,

c512
Engineering Foundation, Inauguration of, 188,
237 Engineers:
—Place in business, 212
—Status of, Discussion by American Institute of Electrical Engineers, 378; Comment, 361
England. (See Great Britain)
Equipment defects [Squier], *102, *140, *242, *382 Erie Railroad:
—All-steel cars, 1102
Express business. (See Freight and express) Evanston, Ill.:
—Evanston Railway:
Carhouse, *660 Fare collection:

—Automatic registration [Rooke], c844

—Cash and ticket box (Dayton Fare Recorder Co.), *1081

—Collection and registration of city and interurban fares [Hewes], 466; Discussion, -465
-Fare recorder, Computing (Dayton), *145
-Fare recorder showing passenger mile earnings (Bonham), *948
-Front-entrance, center-exit car, Cleveland Ry., 365
-Improved change carrier (McGill Ticket Punch Co.), *640
-Interurban fare register (New Haven Trolley Supply Co.), 593, 680
-New form of fare indicator and recorder (Dayton), 1173 465 Coupting the control of the control

777

Milwaukee, Commission rescinds low-fare order, 333

North Dakota lignite case, Comment, 659

Rate-making, responsibility for, 783

Reduction, Vancouver, B. C., 959

Report of Bureau of Fare Research on operating revenues, 183

Rochester 3-cent fare case, 117

School fare bill in New York State, 391

Springfield (Mo.) Gas & Elect. Co., 110

West Virginia passenger case, 659 -Zone system in Milwaukee [Stearns], *836; Comment, 825 Fault localizer. (See Cable fault)
Federal reserve system [Weeks], 222; [Mortimer], 226
Federal Trade Commission, Members, 434
Feeders. (See Overhead construction)

Fences:
—A. R. E. A. report, 570
—Spring posts (Carbo Steel Post Co.), *807
Fender and wheel guards:
—Fenders for New York buses, 1000
—New type air-operated fender (American Automatic Fender Co.), *723
—Sandbox opened by fender trip, Third Avenue Ry. [Johnson], *106
—Sheet-steel pilot, Chicago, Lake Shore & South Bend Ry., *106
Ferromanganese and the European war, 581
Ferryboat, Steel, Oakland, Antioch & Eastern Ry., *13
Filing of technical literature [Arthur], c 511
Financial:

 Increased power consumption of traction lines, Public Service Corporation, 1022 (Abbreviations: *Illustrated. c Correspondence.)

Financial: (Continued)

—Bureau of Fare Research:
Comparison of steam and electric railway revenues, 183
Comparison of electric railway revenues, bank clearings and building construction, 506

—Capitalization and financial operations of electric railways, Census report, 130

—"Chilled capital" [Bennet], *843

—Declaring dividends out of surplus, 657

—Double liability for stockholders, 827

—Earnings of electric railway, Trend of, 269

—Equipment cost data, Worcester, Mass., 427

—Extensions of street railway tracks subsidized by benefited property owners, Cleveland, 951

—Federal reserve system [Weeks], 222; [Mortimer], 226

—Increased rate of return allowed by East Linden Railway, 525

—Interest rates on public utility bonds during the war and reconstruction period [Welsh], c 137

—Investment required per passenger, [M'Grath], *881; [Bradlee], c987; [Fenstel], c1077; [Emery], c1119

—Iowa interurban railways, Annual report, 292

—Massachusetts legal street railway bonds, 154

—Moody review and forecast, 114 — Massachusetts legal street railway bonds, 154
— Moody review and forecast, 114
— New York State, Securities for new construction, 393
— Ohio railway valuations, 193
— Probable revenue of new line, considerations [McIntire], c799
— Revenue increase for New York State railways in 1914, 237
— Steam railroads in 1913, 289
— Supplementary financing, 1056
— Westinghouse conversion plan, 906
Fire-fighting car at Duluth, *472
Fire protection and insurance:
— Brooklyn Rapid Transit Co., 435
— Carhouse at Springfield, Ohio, *560
— Car-wiring code, changes, 285
— Hearing on fuses, Bureau of Standards, 1215
— Precautions for Fourth of July, 1190
— Reducing the fire risk [Daniels], 329
Fire Protection Association:
— Convention, 936
Fires:
— Carbouse, Boston & Worcester Street Ry., Fires: Carhouse, Boston & Worcester Street Ry., Carnouse, Boston & Wolfester Street Ry,
434

Fitchburg, Mass.:

—Fitchburg & Leominster Street Railway:
Making safety movement permanent
[Bennett], c717
—Safety first campaign, 736

Fonda, Johnstown & Gloverville R. R. (See
Gloversville, N. V.)

Fort Wayne & Springfield Railway. (See Decatur, Ind.)

Fort Wayne, Ind.)
—Fort Wayne, Ind.:
—Fort Wayne & Northern Indiana Ry:
Agricultural educational work, *712

Fort Worth, Texas:
—Northern Texas Traction Co.:
Coasting records, *1198
Publicity campaign against jitneys, 1049
Weed cutter [Griffiths], *1121

Foxboro, Mass.: Foxboro, Mass.:

Norfolk & Bristol Street Railway:
Fare hearing, 911 ance:
-Midi Railway:
Catenary construction, 1040 Franchises: -Valuation:
New Jersey Gas case, c57, 112, 199, 304,
1177 Frederick, Md.: —Hagerstown & Frederick Ry.:

Demonstrations of "chilled capital"

[Bennett], *843 Freight and express:

—Car-load freight on small lines [Clark], 1114 Discrimination against electric freight, 3
-Iowa & Illinois Ry., Service discontinued, 260
-Pittsburgh ordinance, 399 —Possibilities, 2
—Statistics of express companies in the United States, 323
Freight cars, Restoring to side bearings on short curves [Hinman], *425
Freight rates:

G

—Ohio. 206
Front-end conductors, 31
Full crew laws, Opposition to, in Pennsylvania and New Jersey, 392
Fuses, Proposed hearing on, Bureau of Standards, 1215

-Mahoning & Shenango Railway & Light Co., 311

Garment dryer, Electric [Shannon], *300 Gary, Hobart & Eastern Traction Co. (See Hobart, Ind.) Gas, Electric & Street Railway Association of Oklahoma: -Convention, 983

Gasoline cars:

—Illinois Central R. R., 51

—Union Pacific R. R., *1215
Gears and pinions:

—Heating apparatus, 638

—Installation and removal [Parsons], 674

—Method of removing [Dalgleish], *942

—Operation of hard gears and soft pinions

[McAloney], *803, c990; [Cooper],

c890; [Pbillips], c891

—Removal of pinions [Ross], c800

—Rethreading pinion-ends [Vulcan], 720

—Testing [Allen], *1201

—Use of gas flame in removing [Parsons],

c988

—Wear_of gears and pinions [Ross], 628 — Wear of gears and pinions [Ross], 628
General Electric Co.:
— Exhibit for San Francisco, 194
— New apparatus, 248
Generators:
— Capacity of direct current [Lamme], 300 Capacity of Germany:

—Berlin railways, effect of war, 813

—Female conductors during war in Berlin, 813 Effect of war on traffic, 729

Hospital cars, *50

Purchase of Berlin Electric Works by city, 859 Railway and electrical conditions [Eichel], —Railway and electrical conditions [Eichel],
345
—Silesian single phase electrification, *666
—Test of high-tension direct current, 338
—Trier tramways, ambulance cars [Eichel],
*831
—War revenues of tramways, 599
—Wendelstein Ry., 1500-volt d.c. line with regeneration and storage battery, 274
Glasgow Corporation Tramways. (See Great Britain.)
Gloversville, N. Y.:
—Fonda, Johnstown & Gloversville Railroad,
Fare change, 159
—Workingmen's fare reduction, 1136
Gongs, Foot [Reiter], *344
Governors' messages, 146, 195
Grand Rapids, Mich.:
—American Public Utilities Co.:
Annual report, 74
Earnings and expenses, 859
—United Lt. & Rys. Co.:
Annual report, 814
Greenfield, Mass.:
—Connecticut Valley Street Railway, Application to consolidate with Northern Massachusetts Street Railway, 731
Great Britain:
—Belfast City Tramways, Recruiting car, Britain: Belfast City Tramways, Recruiting car, *793

-Electrification projects, 684

-Glasgow Corporation Tramways:
Fifect of war, 302

Front exit double-deck car with folding step. *297

Railway men as soldiers, *47

Women as conductors, 790, 1031

-Hartlepool tramways, Bombardment of, 180

-London: — Hartlepool tramways, Bombardment of, 180
— London:

Letters from, 69, 301, 476, 683, 853, 1085
Reasons for success of motor bus, 888
Strike, 998; Comments, 968
— Manchester Tramways, Effect of war, 302
— Motor bus costs, Comments, 869
— Municipal operation in England, [Connett], 179
— Operating results of temperature was based. Operating results of tramways analyzed [Lawson], 929
Railways, Action of, At outbreak of war, 70

Signs, Illuminated guide, *473

Ticket-printing machine at Victoria Station, London, *473

Great Falls, Mont.:

Electrification of terminal for C. M. & St. P. Ry., *1172

Ground-wire alarm [Koppel], *144

Guy anchor (Track Specialties Co.), *808

H

Hagerstown & Frederick Ry. (See Frederick, Md.)
Hamilton, Ont.:
— Dominion Power & Transmission Co., Ltd.:
Annual report, 688
Hampton, Va.:
— Newport News & Hampton Ry.:
— Pension system, 1183
Hanover, Pa.:
— Hanover & McSherrytown Street Railway, Sale, 731
Havana, Cuba:
— Havana Electric Railway, Light & Power Company:
Ncw power station [Ricker], *920
Hawaii:
— Ilonolulu Rapid Transit & Land Co.: waii:
-Honolulu Rapid Transit & Land Co.:
Earnings and expenses during 1914,
1179
Red-ccdar ties, 92 Red-ccdar ties, 92
Headlights:
—Golden Glow (Esterline), Test at Mobile,
Ala., 194
—Light-weight, (Trolley Supply Co.), *1082
—Locomotive:
Report of Master Mechanics Ass'n
committee, 1116

(Abbreviations: *Illustrated. c Correspondence.)

Ileadlights: (Continued)
—Test United Railways of St. Louis, 639
Heating of cars:
—Requirements, Study of, 103
Heavy Electric Traction:
—Discussion before A. S. M. E., [Armstrong, Batchelderl, 982
—Discussion of electrification [Goodnow, Murray, Gibbs and Kattel], 579
—Electrification of Jamestown, Westfield & Northwestern R. R., *1110
—Maintenance of electrical equipment, Master Mechanics Ass'n report, 1115
—New York Central R. R., Maintenance costs [Kattél, 580
—Norfolk & Western Ry. [Gibbs], 581
—Operating costs, Experience of New Haven road [Murray], 229; Comment, 213; [Storer], c 335; [Henderson], c 380
—Three-phase electrifications in Italy, Results [Pontecorvo], *283, *450
Henderson (Ky.) Street Ry.:
—Franchise matters, 434
High-tension direct-current railways:
—Annapolis Short Line, Conversion from single-phase to d. c. operation without interruption of service, *542
—Berlin tests, 338
—Electrification of "Valeria Way" line in Great Falls, Mont., *1173
—Michigan Railway, 2400-volt line, Construction features, *1144
—Progress of 1914, 13
—Salt Lake & Utah R. R., Details of line, *54
—Tatra Ry., Hungary, 1650-volt line, 248
—Wendelstein Ry., Germany, 1500-volt line, 274
Highway crossings:
—Illinois standard, *145
—Protection (See Signals).
Highwood, Ill.:
—Chicago & Milwakee Electric Railroad:
—Results with ampere hour meters on cars, *973
Hobart, Ind.:
—Gary, Hobart & Eastern Traction Company, Stock reduction, 646
Hocking Valley Railroad:
—Service order carried to Supreme Court, 77
Hoist, Motor truck, For pole handling (Northern Engineering), *475 Hoist, Motor truck, For pole handling (Northern Engineering), *475

Holyoke, Mass.:

Holyoke Street Railway:
Bonds offered, 646
Feeder panels for carhouse trolley wires,
*1214
Locating laths in floor recess 1040 Locating lathe in floor recess, 1040
New carhouse and shops, *930
Shop trucks, *899
Temporary drilling outfit for runningboard toe plates, 1174 board toe plates, 1174

Houston, Texas:

— Houston Electric Company:
Advertising, 1050

— Houston Electric Co.:
Publication of magazine, 260

— Jitney bus, 648, 1021

— Ordinance providing for paving maintenance by railways, 856

Hudson & Manhattan R. R. (See New York City)

Hydroelectric Power Commission:
— Report, 1137

Hydro-radial Railways:

— Meeting of Niagara District Hydro-radial Union, 643 Illinois Central R. R.:

—Gas-electric cars, 51
Illinois Electric Railway Association:

—Feeder tap protection [Smith], 626; Comment, 659

—Meetings, 173, 626
Illinois Public Utilities Commission, First year's work, 349
Illinois Traction System (See Peoria, Ill.)
Impact between moving cars [Endsley], 1164
Indiana Railways & Light Co. (See Kokomo, Ind.)
Indiana railway statistics [Duncan], 456 Ind.)
Indiana railway statistics [Duncan], 456
Indianapolis, Ind.:
—Indianapolis Traction & Terminal Company:
Alleged violation of arbitration award,
902

Earnings during 1914, 907
Extension of tracks, Commission order
not upheld, 1000
Labor controversy, 855
Motion for injunction by labor, 812

-Terre Haute, Indianapolis & Eastern:
Annual report, 1179
Central oiling system for power plant,
*896 Controversy with county commissioners, Copper zone system, 734

Traction terminal station, Traffic statistics, 440
Inertia effect of moving trains (See Energy Consumption)
Inspection of cars:

Methods in Greater New York [Whiston], 133
Procedure Milmarks Ele Procedure, Milwaukee Elec. Ry. & Lt. Co.,

1050

VIII . Instruction of employees (See Employees)
Insulating tape requirements [Austin], 888
Insulation: -Materials and methods in motor insulation [Hellmund], 508 Insulators:

—Boro-porcelain [Lockel], *765
—Corrugated wet process (Pittsburgh), *593
—Third-rail, new type (Bridgeport Brass Co.), *1175
Insurance of employees (See Employees, Insurance, Fire (See fire protection and insurance)
Interstate Commerce Commission:
—Access to private correspondence denied by Supreme Court, 434
—Accident reports, ruling on, 883
—Conference on federal valuation, 1031
—Decision on Crosby transportation case, 1137
—Report on accidents, 1071

—Report on accidents, 1071
—Report on steam roads for 1913, 289
Interest rates (See Financial)
Interurban railways:
—Automobile industry, Effect of, 448
—Statistics in Indiana, 456
Iowa & Illinois Ry. (See Clinton, Ia.)
Iowa Street & Interurban Railway Association:
—Convention papers, 794; Proceedings, 839
Italy;

Jack suspended from side sill of car, Lehigh Valley Transit Co. [Branson], *191 Jacks:

Emergency (Buckeye), *194

Emergency (Templeton, Kenly & Co), *897

Hydraulic [Koppel], *1039

Jackson, Miss.:

Jackson Light & Traction Company, Oneman cars, 1136

Jacksonville (Fla.) Traction Co. financial matters, 254

Jamestown, Westfield & Northern Railroad:

Electrification, 1110

Jersey City:

Industrial development railway proposal, *663

Jim Crow law upheld in Kentucky, 400

Jitney buses:

Jitney buses:

ley buses:

-Ammunition in jitney war, *634
-As a gold brick, 919
-Boise, Idaho, ordinance, 397
-Buses for sale in Kansas City, *1149
-Cartoons, *846
-Colol line, Comment, 1189
-Competition in various cities, Early history [Meade, Black], *324; Comment, 318
-Compalisance regarding accidents, 1141

tory [Meade, Black], *324; Comment, 318

-Complaisance regarding accidents, 1141
-Convention, 650, 817, 911, 960
-Cost of bus operation, Figures based on actual results for auto buses and jitneys, Estimates made by projected companies [Lafferty, Weaver], *414
-Cost of operation, 620
-Craze on the wane, 784
-Data from Houston, Texas, 1021
-Distribution of nickel compared with street railway, 1024
-Discussion of [Kealy], 1071
-Eighty years ago, 611
-E1 Paso, Texas, 1105
-For Houston, Texas [J. G. Brill], *640
-Franchise developments in Des Moines, 950; Comments, 917
-Georgia Railroad Commission ruling, 1182
-Illinois Commission hearing, 1093; Order, 1135
-In Los Angeles, 76; [Lewis], 757

-Georgia Railroad Commission hearing, 1093; Order, 11135 Commission hearing, 1093; Order, 11135 Commission hearing, 1093; Order, 11105 Angeles, 76; [Lewis], 757

-In Omaha [Palm], 795
-Information summarized from fourteen cities, 648
-Issue at Los Angeles election, 1094
-Itiney situation [Johnson], 985
-Jitneys and railway service, Comments, 969
-Legislation in various cities, 484
-Maryland, Rules established, 1226
-Massachusetts bill, 258
-Massachusetts bill, 258
-Menace, 83
-Misleading advertisements, 657
-Official publication, 912
-Operating cost compared with electric railway, 622
-Operating cost compared with electric railway, 622
-Philadelphia, 1223
-Permanent national organization, 960
-Philadelphia, 1223
-Publicity campaign against, Ft, Worth, 1049
-Publicity campaign against, Ft, Worth, 1049
-Publicity for the jitney, Comment, 1013
-Puget Sound Traction, Light & Power Coenters field, 1093
-Record of the movement, 76, 156, 204, 258, 309, 353, 374, 396, 484, 530, 602, 648, 691, 733, 774, 817, 861, 908, 957, 1005, 1048, 1092, 1133, 1182
-Regulation in various cities, 374, 817; Comment, 361
-Report of American Electric Railway Association, 619

-San Antonio, Count, 1197
-San Francisco jitney bus matters, 256
-Situation in Mobile, Ala. [Wilson], c 421
-Syndicated anti-railway news, *462; Comment, 449; [Waters], c 586
-Tabulation of bond and license requirements in various cities, 1223
-The jitney situation, 494
-Who are jitney drivers? 967
-(See also Motor buses)
et, Ill.:

Joliet, Ill.:

—Chicago & Joliet Electric Railway:
Paving experiences [Tennon], 1079
Safety work, 934
—Joliet & Eastern Traction:
Stock destruction, 731
—Joliet, Plainfield & Aurora:
Second bankruptcy dividend, 731
Junction box, Home-made [Koppel], *383
Kankakee & Urhana Traction Co. (See Urbana, Ill.)

K

Kansas City, Mo.:

— Board of control, Work of, 251
— Floods, 1129
— Interurban railway station proposal, 524, 725
— Jitney bus, 649
— Kansas City, Clay County & St. Joseph Railway:
 Fare reduction restrained, 1136
 Insurance for employees, 651
 Poles blown down, 625
 St. Joseph rates restrained, 118
— Kansas City Railway & Light Co.:
 Reorganization plan, 197, 351, 481, 773
 Reorganization plan, 197, 351, 481, 773
 Reorganization time extended, 74
— Metropolitan Street Railway:
 Christmas shoppers assisted by conductors, 76
 City to purchase system, 349
 Extensions recommended, 391
 Financial statement from receivers, 956
 Issue receivers' certificates, 906
 Joker discovered in franchise, 1007
 New cars, *850
 New viaduct line, 728
 Peorganization time extended, 1221
 Reorganization plan disapproved, 481
 Rush-hour methods, 31
 Side destination signs, 735
 Tractor and trailer truck, *516
 Transfer greetings, 78
— Missouri, Oklahoma & Gulf R. R.
 Electrification suggested, 252
— Safety zones, permanent, 1007
— Union station service, 109
— Kansas City-Western Ry.
 Fare readjustment, 78
Kansas-Oklahoma Traction Co. (See Nowata, Okla.)

Kennebunk, Maine:
— Atlantic Shore Railway:
 Annual report, 905
Kentucky Traction & Terminal Co. (See Lexington, Ky.)

Keyport, N. I.:
 Indiana Railways & Light Co.:
 Extension of copper zone system, 119

Labor. (See Employees)
Lackawanna & Wyoming Valley Railroad. (See Scranton, Pa.)
Lamp bank, Portable, for use in substations [Tanis], *893
Lamps, Electric:
—Small Mazdas with concentrated filaments, 519

— (See also Lighting of cars)
Lawrence, Mass.;
— Bay State Street Railway transfer privilege,
651

Legal:

—Alien Labor Bill repealed in New York, 525

—Decision on delayed deliveries of material,
Washington & Old Dominion Ry, 1177

—Decisions on liability for negligence, 107,
900

Decision on taxes for leased lines in Ohio,

-Decision on taxes for leased lines in Ohio, 1179
-Electric railway legal decisions, 107, 681, 900

900

Franchises invalid without consent of property holders, Cincinnati, O., 1178

Franchise valuations, New Jersey Gas Case (See Franchises: Valuation)

Jim Crow law in Kentucky, 400

Michigan Central Railroad ordered to interchange cars with Detroit United Ry, 532

New Jersey "Seven Sisters" law amended

-New Jersey "Seven Sisters" law amended,

-Non-unionism a basis of employment, Kan-sas decision, 266
-Order for free electric service to public buildings in Plainfield, N. J., set aside,

Ordinance against smoking in Butte, Mont.,

-Pay-as-you-enter patent decision, 195
-Repeal of New York Alien Labor law permits work to recommence on subways, 599
-Special rates no basis for permanent rates in California, 1007

Legislation: -Electric railway, in various States, 434, 685,

855

-Indiana, 302, 347, 390, 432, 478

-New York, 433, 478

-Ohio, 391, 478

-Rayburn, Interstate Commerce bill, 151

-Texas, 392

-Trend in State of Washington [Leonard], 729

729
Lehigh Valley Transit Co. (See Allentown, Pa.)
Lewiston, Me.:
—Lewiston-Augusta & Waterville Railway:
Freight equipment [Nottage], *1213
Note issue, 1004
Way records on cost-per-section basis
[Hulett], *669
Levington Ky.

Lexington, Ky.:

—Kentucky Traction & Terminal:

Employes' participation plan proposed,

1183

"We' slogan sign [Bacon], c *292

Lighting of cars:

Lighting of cars:

Emergency magnet switches (Palmer Electric & Mfg.), *640

Investigation New York Municipal Railway Corporation (Gove, Porter), *614, *710

Locking sockets and receptacles to prevent thefts of incandescent lamps (General Electric), *429

Voltage regulator, *851

Lighting a gage board from behind, *193

Little Rock, Ark.:

Railway & Electric Co. wage increase, 159

Loading limits for cars:

Board of Health order in New York, 687

Loading limits for cars:

Board of Health order in New York City, 487, 604, 735, 961; Comment, 494

Order to Brooklyn Rapid Transit Co., 777

Ordinance in Detroit, 604

Proposed ordinance in Toronto, 533

Proposed of Chicago, 605

Standard seating space, Public Service Commission, New York, 1094

Locomotives:

Pethlehem Chile, Iron Mines Co., 67

Locomotives: -Bethlehem-Chile Iron Mines Co., 67
-Butte, Anaconda & Pacific R. R., Experiences with 2400-volt locomotives [Cox],

ences with 2400-volt locomotives [Cox], 136

Comparison of Mallet and electric, *1073

Design of [Arthur], 1209

Electric and steam compared, 1155

Italian State Railway, Three-phase locomotives, 53; [Pontecorvo], *283, *450

Modern rugged design, 1055

Maintenance costs, New York Central R. R. [Katté], 580; Comment, 611

Panama Canal towing locomotives, *235

Pennsylvania R. R., at the Panama-Pacific Exposition, *387

—Single-phase, for Prussian State Railways, 667

—Single-phase, three-phase, Norfolk & Western, *1060

—Steam and electric maintenance costs, c 672

3000-volt d.c. for Chicago, Milwaukee & St. Paul Railway, *1072; Comments, 1055

Locomotive, Internal combustion, One man, *68

London, Ontario:

London Street Railway, 731

-London Street Railway, 731 Annual report.

— London Street Railway, 731

Annual report.

Long Island City:

— Manhattan & Queens Trac. Corp.:

Three-in-one car for line repairs' [Sherwood], *1121

Long Island R. R.:

— Combined steel and wooden trains discontinued, 78

— Operation costs, 815

— Protest against reelection of directors, 773

— Steel cars, Ten years' experience, *566; Comment, 539

— Stockholders' suit against Pennsylvania R. R., 731

— Tracks to be used by New York subway trains, 599

Los Angeles, Cal.:

— Car maintenance records, 1214

— Court sustains 10-cent fare to Eagle Rock, 856

— Jitney bus:

-Court sustains 10-cent tails as 856

-Jitney bus:
Election issue, 1094
Regulations, Hearing, 156; Comment, 83
Special message, 76

-Los Angeles Railway Corporation:
Bond issue, 1004
Illuminated destination sign with car
and run numbers, *1169

-Monticeto R. R., Opening, 391

-Pacific Electric Railway:
Collision with locomotive, 1050
New interlocking plant (General Ry
Signal), *946
Shockless railroad crossing, *994
Street and station indicator, 67

-Purchasing of railways by city under consideration, 349, 1220

-Service methods, 78

-Transfer of railway properties denied, 528

-Transportation problems, 1129
Lost articles, Handling, New York Rys., 28

Louisville, Ky.:

—Louisville & Interurban:
Dealing with the spitter, 487
—Louisville Railway:
Accident record, 899
Reminiscences of veteran employe, 1209
Value of politeness [Funk], 735
—Louisville & Southern Indiana Trac. Co.:
Freight rate agitation, 820
—Safety zone plan, 735
—Sand-spreading wagon [Havass], 300
Lubrication of motors, siphon, Budapest, *342
Lumber, Grading of, A. R. E. A. report, 571

M McKeesport, Pa.:
——Pittsburgh, McKeesport & Westmoreland
Ry., Receiver sale, 816
Mahoning & Shenango Railway & Light Co. (See
Youngstown, Ohio) Mail Transportation:

—Moon Post Office Bill defeated, 521

—Parcel post "without additional compensation," 165

—Pay for mail compared with express rates, 741 Maine, Railway statistics, 73
Maintenance expenses, proportionate increase since 1907, 540
Maintenance of electric railway equipment [Barnes], 467; Discussion, 465
Maintenance of cars:
—Reducing by proper handling of equipment [Leonhauser], 384
Maintenance records and costs:
—Car maintenance, Rome, Ga. [Wade], 383
—Car maintenance records, Los Angeles, 1214
—Costs of concreting pavennent [Gausmann], 718
—Motor repairs on Memphis Street Ry, *721 718

— Motor repairs on Memphis Street Ry, *721
— New York Central R. R. [Katté], 580;
Comments, 611
— Signal maintenance, New York, Westchester & Boston Ry., 565
— Steam and electric locomotives, c 672
— Wheel and axle records, Chicago Elevated, *551
Manganese Steel Foundry Society, Special work standards, 755, 1118
Manganese steel (See Truck Construction)
Manganese Track Society;
— Manganese steel work specifications, 1118

Special work standards, 755
Manila, P. I.: — Special work standards, 755

Manila, P. I.:

— Manila Electric Railroad & Light Co.:
Company section, Meetings, 337, 380, 673, 798, 1033, 1211; Officers, *510
New schedule, 260
Operating results, 422
Safety first movement, 1120

Manhattan & Queens Traction Corporation (See Long Island City)
Manufacturers and their relations to the railways [Tripp], 185

Mans: Maps:

Jamestown, Westfield & Northern Railroad,
1111

Michigan Railway and allied lines, 1145

Norfolk & Western electric zone, *1060
Massachusetts Electric Companies (See Boston)

Massachusetts Electric Companies (See Boston)
Massachusetts:

—Public Service Commission:
Annual report, 196

—Railway investments, 201
—Transportation in western part of state, Report of legislative commission, 197
Massachusetts Street Railway Association, Meeting, 137
Master Car Builders' Association:
—Convention, 1163; Exhibits, 1117
—Plans for annual meeting, 137
Mayor's Utility Bureau, Organization, 112
Medal, Anthony N. Brady, Award of, *239; Comment, 211
Medical methods, Chicago Elevated Rys. [Fisher], *1192
Memphis, Tenn.:

Memphis, Tein.:

Memphis Street Railway Company:
Maintenance co-operation, *721
Publicity in the shop, 699
Messages of the governors, 146, 195
Metallic salts for pyrometric purposes, Use of (Nehls Alloy Co.), 106
Meters on cars (See energy consumption)
Metrico:

Mexico:

Mexico:
—Effect of war on railways, 1086
Michigan City, Ind.:
—Chicago, Lake Shore & South Bend Ry.:
Sheet steel pilot, *106

Sheet steel pilot, *106

Michigan Railway:

—Description of 2400-volt line; service, roadway, third-rail construction, surge protection, *1144

—New line opened, 1044

Middlesex & Boston Street Ry. (See Newtonville, Mass.)

Midi Railway (See France)

Mileage statistics for 1914, 14; Comment, 12

Milwankee Wis:

Milwaukee Wis.:

Milwaukee Wis.:

Milwaukee Electric Ry. & Light Company:

Annual report, 645

Asphalt relaying with hot mixer, *1080

Milwaukee, Wis.:

—Milwaukee Elec. Ry. & Lt. Co.: (Continued)
Bonus system for employees, 1008
Company section, 100, 418
Fare case decision, 1226
Machine tool guards, 756
Railroad commission rescinds low-fare order, 333
Repair-shop procedure, *786
Zone fares. Paper before New England
R. R. Club [Stearns], *836; Comment, 825

—Milwaukee Northern Railway:
Regulators for car lighting circuits, *851
—Wisconsin Railway Light & Power Co.:
Annual report, 153
Minneapolis, Minn.:

Annual report, 153

Minneapolis, Minn.:

—Twin City Rapid Transit Co.:

Annual report, 527

Cable splicer's portable tool box, *247

Flange-bearing special work [Wilson],

c 1034

Pension plan for employees, 118

Missouri Association of Public Utilities:

—Convention, 1071

Missouri, Oklahoma & Gulf R. R. (See Kansas

City)

Missouri public utility law, 113

Mobile, Ala.:

Mobile, Ala.:

—Advantages of small cars [Wilson]. c1206

—Jitney bus situation [Wilson], c 421

Monterey, Cal.:

—Monterey & Pacific Grove Railway, Bond issue refused by commission, 773

Monticeto R. R. (See Los Angeles, Cal.)

Montpelier, Vt.:

—Barre & Montpelier Traction & Power Co.,
Fare increase, 119

Fare increase, 119

Montreal, Can.:

—Flange-bearing special work [Graves], c 1034

—Montreal Tramways:

Franchise extension, 112

Note issue, 689

—Municipal ownership, Report on, 1001

—Safety first league, 159

—Safety first savings, 165

Montreaux Oberland Ry. (See Switzerland)

Morris Plan Co., New York organization, 687

Motor Buses:

Morris Plan Co., New York organization, 687
Motor Buses:

—(Also see Jitney Buses)
—Chicago, Traction fund for municipal system, 348
—Double deck, with low roof, Vienna, *49
—In London [Gordon], 888; Comment, 869
—Interurban bus service, 1218
—Rush hour service, 658
—Seattle, Wash, motor bus fund, 199
—Well construction with low roof in Vienna, *49, *51
—Washington Motor Bus Co., Details of service, 1225

Motors:

Motors:

— Axle bearing cap with oil-saving filler, *66

— Baffle plate for motor axle bearing caps

[Fox], *424

— Calculations of starting resistances [Simmon, Cameron], c 238; [Buck], *330; [Castighoni], c 336, 381; [Harding], c 186; Comment, 405.

— Chart for the transformation of speed curves for different voltages [Castiglioni], *515

— Efficiency [Hellmund], 594

— Field-control motor speeds [Hellmund], 520

— 1500-volt for C. M. & St. P. Rv. Charace

Effector [Hellmund], 594

Field-control motor speeds [Hellmund], 520

—1500-volt for C. M. & St. P. Ry., Charaeteristic curves, *1073

—High-tension d. c. tap field for Central Argentine Railway, *679

—Impregnation of coils (Electric Operations Co.), *429

—Insulating materials and methods [Hellmund], 508

—Lubrication, Siphon, Budapest, *342

—Maximum motor input [Mulder], c. 511

—New York Municipal Ry., 160-hp., tapfield, *497

—Overloads and flashing [Parshall], c. 57

—Pressed steel (Westinghouse), *1041

—Resistances, Effects of incorrect starting resistances [Corning], c*93

—Selection for city service [Remington], 675

—Steinway tunnel equipment (General Electric Co.), *1124; (Westinghouse), *764

—Testing insulation [Lewis], 1037; Comment, 1055; [Gove], c. 1119

—Ventilated cover to increase output [Parsons], 1170

—Ventilation, advantages and disadvantages [Hellmund], *833; Comment, 827; [Priest], c. 891; [Hellmund], *937; Comment, 968; [Adams], c. 990; [Phillips], 1209

Mt. Vernon, Ohio:

—Mt. Vernon, Railway, Receiver appointed.

Mt. Vernon, Ohio:
—Mt. Vernon Railway, Receiver appointed,
773

Moving pictures (See Accident claim department, Prevention)
Multiple unit trains, Maintenance cost, 611
Municipal Electric Railway (See Edmonton, Alta.)

Municipal Ownership:
— Bills defeated, Massachusetts, 643, 812
— Dual ownership in Alsace, 1217
— England, Experience in [Connett], 179

(Abbreviations: *Illustrated. c Correspondence.)

Municipal Ownership: (Continued)
— Inquiry bill, California, 643
— Ohio bill passed permitting bond issues for purchase, 769
— Ordinance discussed, Toledo, 1042
— Pekin (Ill.) Street Railway transferred to City, 1000

N Nashville, Tenn.:

—Nashville Ry. & Lt. Co.
Safety crusade in schools, 1077
Safety-first campaign, 78
—Nashville Traction Company, line opened, 1000
National bureau of transportation suggested by Howard Elliott, 741
National Civic Federation:
—Workmen's compensation suggestions, 252
National Committee on Line Construction:
—Meeting, 798, 986
—Plans, 101
National electrical week, Plans, 435
National Electric Light Association:
—Address by President Scott, 1106
—Convention:

Proceedings, 1106 —Convention:
Proceedings, 1106
Officers elected, 1162

National Electrical Safety Code:
—Comment, 825
—Conference postponed, Comment, 1189
—Discussion on [Harvie], c 768; [Hanna, Cadle], c 1036; [Crecelius], c 941; [Tingley], c 845
—Explanation of [Rosa], c 939
—Preliminary edition, 750; Comments, 741
—Representation at conference on details, 1162
—Status of work [Rosa], 673
National Railway Appliance Association;

—Status of work [Rosa], 673
National Railway Appliance Association:
—Secretary appointed, 1044
New Bedford, Mass.:
—New Bedford & Onset St. Ry.:
Increase of fares, 819
Increased fare suspended, 1136
New England Street Railway Club:
—Annual meeting, 631
—Zone fares in Milwaukee [Stearns], *836;
Comment, 825
New Jersey Public Utility Commission report, 148
New Jersey Traction Co. (See Keyport, N. J.)
New Jersey Utilities League, 390
New Haven, Conn.:

New Haven, Conn.:
—Connecticut Co.:
Life of way structure [Wilson], *1212

New Orleans, La.:

New Orleans Railway & Light Co.:

Annual report, 1002

Cars, all-steel, *270; Comment, 275

Traffic survey, 311

V York Central Railroad:
-Maintenance costs [Katté], 580; Comment, -Suburban fare case decision, 1136

-Capacity of cars limited by Board of Health, 487, 604, 693, 856, 961; Comment, 494; Order defied, 1049; Upheld by courts,

487, 604, 693, 856, 961; Comment, 494; Order defied, 1049; Upheld by courts, 1184

—Consolidation of New York, Westchester & Boston Railway & Westchester Northern Railroad, 1091
—Dry Dock, East Broadway & Battery Ry.: Bond issue not approved, 955
—Electric Bond & Share Co., Capital increase, 393
—Fenders for Fifth Ave. buses, 1000
—Ferry-car transfers continued, 1184
—Hudson & Manhattan Railroad:
Annual report, 730
Complaint handling, 26
Courtesy of employees, 20
Earnings in 1914, 114
Hudson Companies, Annual meeting, 153
Painting cars in two days, Use of baking chambel [See], *584
Relay setting for uniform acceleration [See], *761
Safety record, 777
—Inspection of equipment by Public Service Commission [Whiston], 133
—Interborough-Metropolitan Investing & Security Co., Investigation, 303
—Interborough-Metropolitan readjustment plan, 858; Approved, 1090
—Interborough Rapid Transit Company:
Dual system contract modified in regard to new steel subway ears, 770
Elevated Railways:
Accidents, 356
Signals needed, 391
Steel car report, 252
Third-tracking, 480

New York City:

—Interborough Rapid Transit Co.: (Continued)
Electrical equipment of Belmont tunnel
cars, *764, 803, *1124
Subway franchise taxable, 767
Passenger traffic, 134, 689
Remodeling Seventy-fourth St. power
station, 744, *764; Comment, 742
Removal order against wooden subway
cars, 644, 953
Subway: cars, ort, subway:
Accident caused by short-circuit,
95, 148, 432; Comment, 85
Delay, third-rail short circuit, 305
Fire, 598 Delay, third-rail short circuit, 305
Fire, 598
Labor problem, 113, 480
Sand for, from Europe, 1200
Service order concerning seating
of passengers, 260
Suggested changes for preventing
accidents, 251, 729
Welfare work, 487
—"Jay Walkers," Plan to suppress, 400
—Metropolitan Street Railway, Franchise tax
reduction, 728
—Motor bus franchise matters, 113, 480, 1088
—New York Municipal Railway Corp.:
Brakes and auxiliaries on new cars,
4872
Car lighting investigation [Gove, Por-Brakes and auxiliaries on new cars,

*872

Car lighting investigation [Gove, Porter], *614, *710

Cars—Motors, control, conduit and collectors, *496

Report on construction progress, 249

Speed control for Brooklyn subway, 72

Testing motor insulation [Gove], 1119

New York & Queens County Ry.:

Abandonment of portion of franchise prohibited, 952

Service order, 863

New York Railways:

Interest rate fixed on income bonds, 689

Lost articles, Handling, 28

Snow-sweeper with outward swung broom, Tests of, *320; Comment, 317 Operating over broken water main, *1211

New York, Westchester & Boston Railway:
Consolidation with
Northern Railroad, 1091
Signal maintenance methods, *561;
Comment, 539

Proposed leases of Long Island tracks to city, 772

Public Service Commission:
Charges against commission and investigation, 71, 152, 199, 265, 302, 309, 346, 430, 477, 641, 811, 1042
Inspection of equipment [Whiston], 133 Inspection of equipment [Whiston], 133 Inspection of equipment [Whiston], 133
Report, 196
Service orders to be enforced, 206
Signal and steel car resolutions, 110
Standard seating space fixed, 1094
Suggestions regarding changes in subway, 251

—Repeal of Alien Labor Law, 599
Republic Delivers, 8 Light Co. Repeal of Alien Labor Law, 599

Republic Railway & Light Co.:
Annual report, 1090

Smoking order suspended, 1227

Staten Island Midland Railway:
Issue of trust certificates, 860

Steinway Tunnel:
Electrical equipment for cars, *764, *1124

*1124**

*1124**

1124

1124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

124

**1 Modifying agreement for temporary operation, 903

Third Avenue Ry.:
Accidents for 1913 and 1914, 296
Ampere-hour meters on battery cars, 593 Ash-pit for blacksmith forges, Removable [Jenkins], *425
Axles, Reclaimed by welding [Johnson], *204 Axles, Reclaimed by welding [Johnson],

*294

Blockade photos, Cash offered for, 158

Coasting time recorders, Experience,

*572; Comment, 541

Crane car for track work [Ryder], *763

Investigation by stockholder's committee, Report, 307

Knife guard for jointer or planer [Johnson], *805

President's statement, 647

Transfer printing plant, *702

Sandbox opened by fender trip [Johnson], *106

Snow pictures, 441

Use of gas flame in removing pinions [Parsons], 988

Window cleaner, Fixed squeegee on motorman's cab [Johnson], *339

—Utah Securities Corporation, Annual report, 1089

—J. G. White Companies, Annual report, 1090

New York Electric Railway Association:

—Meeting at Lake George, 464; Comment, 447

New York, New Haven & Hartford Railroad: New York, New Haven & Hartford Railroad:
—Charter revision hearing, 769
—Electrified division, operating results [Murray], 229; Comment, 213; [Storer], c 335; [Henderson], c 380

—Future plans, 389
—Indictment of officials, 151, 643, 686, 729

New York Railroad Club:

—Electrical night [Gibbs, Eaton, Pender, Murray, Armstrong, Turner and McClellan], 624

New York State:
—Constitutional Convention, Comment, 869
—Industrial Commission created, 1044
—Public Service Commission:
Capitalization report, 306
Quarterly pamphlet issued, 282
Reorganization proposed, 71
Report, 196, 509
Rules of procedure, Changes, 112
—Securities for new construction, 393
New York State Rys. (See Rochester, N. Y.)
(See Syracuse, N. Y.)
Newark, N. J.:
—Passaic Gas case. (See Passaic, N. J.)
—Public Service Corporation:
Annual Report, 600
—Public Service Ry:
Company section:
Meetings, 188, 380, 418, 589, 631, 1211
Officers, *100
Program for year, 337
Winter program, 1
Increased energy consumption, 1022
Moving pictures in safety education, *98
Near side stop established by law in Near side stop established by law in New Jersey, 962
Open, steel underframe car, *1171
Terminal, progress on, *793
Safety methods, 282
Newport News & Hampton Ry. (See Hampton, Va.)
Newtonville, Mass.:
—Middlesex & Boston, Street Ry:
Fare case, 137
Niagara District Hydro-Radial Union:
—Annual Meeting, 643
Niagara, Ste. Catharines & Toronto Ry. (See Ste. Catharines, Ont.)
Norfolk & Bristol Street Ry. (See Foxboro, Mass.) Niagara, Ste. Catharines & Toronto Ry. (See Ste. Catharines, Ont.)

Norfolk & Bristol Street Ry. (See Foxboro, Mass.)

Norfolk & Western Ry.:

—Electrification plans [Gibbs], 581

—Electrification. Description of line, locomotives, power house and service, *1058; Comment, 1057

Northern Electric Ry. (See Chico, Cal.)

Northern Ohio Traction Co. (See Akron, Ohio)

Northern Texas Traction Co. (See Fort Worth, Tex.)

Northern White Cedar Association:

—Convention, 274

Norwich, Conn.:

—Shore Line Elect. Ry.:

Wage increase, 1226

Notices to the public, Wording of, 361

Nowata, Okla.:

—Kansas-Oklahoma Traction:

Combination cars, 806

Number box, Illuminated, Rockford, Ill. [Graham], *341 0

1203
Note issue, 74
Power contract declared unreasonable,
1001 Power contract declared unreasonable, 1001
Readjustment statements, 1131
Valuation findings, 1090
Value of Key-Route property, Appraisal, 646
Oakwood Street Railway. (See Dayton, O.)
Ocean Shore F.R. (See San Francisco, Cal.)
Ohio Electric Ry. (See Cincinnati)
Ohio Industrial Commission:
—Compensation rulings, 373
Ohio Public Utilities Commission:
—Report, 151
Ohio Traction Company. (See Cincinnati, O.)
Oiling system:
—Central lubricators, *896
Oklahoma City:
—Jitney bus, 648
Omaha & Lincoln Ry. & Lt. Co. (See Ralston, Neb.)
Omaha, Neb.:
—Omaha & Council Bluff Street Railway:
—Annual report 1045 Annual report, 1045
Valuation of properties, 252 Valuation of properties, 252

One-man cars:

—Experiences with [Howard], 233
Ontario Hydro-Electric railways, 305
Ontario. Canada:

—Railways under compensation act, 348
—Storm conditions, 347
Operating problems:

—Increasing capacity of the line, 6
—Standards in the operating department, 8
Operating records and costs:

—Amperehour meter records, Chicago & Milwall Chica

Operating Records and Costs: (Continued)

—Coasting records, Various railways, *706,

*1198

—Distribution of operating expenses, Census
report, 96, 131

—Economies with small cars [Layng], *979

—Equipment failure records, Standardization,
1099

Literature 109 1099

Jitney bus, 620

Milwaukee Electric Railway & Light Co., 333

Need for standards, 8

New York, New Haven & Hartford R.R.,
Electrified division [Murray], 329;
Comment, 213

Pennsylvania R. R., locomotive performance,
1217

Service record chart Chicago, *366 Service record chart, Chicago, *366
—Taxicabs, 621
—Tramways of Great Britain [Lawson], 929
—(See also Traffic counts)
Ottawa, Ill.:
—Chicago, Ottawa & Peoria Ry.:
Bridge and building inspection report forms, *342
Restoring wheel flangers with welder [Murphy], *719
Sand experience [Carr], 143
Way department rule book to promote standard practice, 89
Ottawa, Ont.: ottawa, Ont.:

Ottawa Traction Company, Ltd.:

Annual report, 688

Overhead construction:

Automatic section insulator (Westinghouse), Clevis clamps for standard cable, *805 -Combination side-feed wedge for splice ears, *1041 -Cross arms, Malleable iron, on wooden poles, New York State Rys., *297 -Dead-ending feeders to metal poles [M'Kel-way], *143 way], *143

-Double trolley system, Seattle [Kennedy], *128 —Italy, the Lecco-Calolzio line [Pontecorvo],
*453 - 453

- Line construction on Chicago, Milwaukee & St. Paul Railway, *934

- Mechanical cable connections [Fargo], *1216

- Philadelphia-Paoli electrification, 1118

- Pick-up for broken trolley wires [Branson], *295 *295

Trolley frogs for high-speed operation [Westinghouse], 1217

Trolley frogs for one degree of angle
(Westinghouse), *428

Trolley wire location on curves [Foster],
*62, *105, *142, 191, *242

Pacific Electric Ry. (See Los Angeles, Cal.)
Pacific Gas & Electric Co. (See San Francisco,
Cal.)

Packages, Charge for carrying on cars abolished Packages, Charge for carrying on cars abolished in Seattle, Wash., 1184

Paints and painting:
—Eliminating frills to reduce cost [Lewis], —Hudson & Manhattan R.R., Use of baking enamel [Lee], *584
—Uniformity in color [McAloney], c468
—Change color and save money, 268
Palo Alto, Cal.:
—Rate complaint against Southern Pacific Ry. dividend, 1050
Panama Canal:
—Electric towing *235 Panama Canal:

—Electric towing, *235
Panama-Pacific Exposition:

—Award to Electric Railway Journal, 1141
—Electric railway exhibits, 519
—Electric Railway Journal booth, 1155
—Fair grounds transportation, *754
—Jury on awards, 890
—Locomotive, Electric, of Pennsylvania R.R., *387
—Transportation exhibits, *504
Pantographs:
—Annapolis Short Line, *550
—C., M. & St. P. Ry, Double contact pans [Armstrong], *1072
Parkersburg, W. Va.:

—Kanawha Traction & Electric Co.:

Merger with Parkersburg, Marietta & Interurban Ry., 1180
Parks: Parks:

—Amusement parks opened in Kansas City, 1024
Passaic, N. J.:

—Gas rate case, c57, 112, 199, 304, 1177
Passenger-mile earnings, Recorder for (Bonham), *948
Pavement:

—Asphalt relaying with hot mixer, *1080
—Cutting concrete [M'Kelway], *993
—Discussions on wood block and stone block paving [Oxholm, Tillson, Schmidt], 134
—Experiences at Joliet [Tinnon], *1079
—Methods and cost of concreting [Gausmann], 718
—Traffic standards and traffic values, 135
—Treated wood-block pavements, Discussions at American Wood Preservers' Association, 181
—Warning signs for new work [Cram], *893
Peak traffic. (See Rush-hour)
Pearson, Dr. F. S., Obituary [Quick], c 988 -Amusement parks opened in Kansas City,

Peekskill, N. Y.:
—Putnam & Westchester Traction Co., Oneman operation, 399
Pekin, Ill.: Pekin, Ill.:
——Municipal railway bonds, 391
——Pekin Street Railway transferred to city, — Pekin Street Railway bonds, 391

— Pekin Street Railway transferred to city, 1000

Pennsylvania Railroad:

— Electrification plans, 524

— Mailing communications with dividends, 613

— Locomotive performance, 1217

— Philadelphia electrification trials, 596

— Public with employees, 950

— Publicity practice, 1042; Comments, 1013

— Training men for electric operation [Roberts], *970; Comments, 968

Pennsylvania State:

— Compensation measures signed, 1130

Pennsylvania Street Railway Association:

— Spring meeting, 935, *979; Question Box, 781

Peoria, Ill.: Substation, Portable semi-outdoor, *56
Poles:

Concrete, Electrolysis develops defects, New York State Railways [Throop], 294

—Discussion at Western Red Cedar Association, 180

(See also Timber preservation)

Portland, Me.:

—Cumberland County Lt. & Pr. Co.:
Fare reduction denied, 605
Jitney advertisement, *634

Portland, Eugene & Eastern Railway. (See Salem, Ore.)

Portland Railway, Light & Power Co.:
Annual report, 1089
Jitney bus, Statement concerning, 396
Note offering, 816
Readjustment of capitalization, 860
Rush-hour traffic and schedule adjustment, *138

Weekly publication for patrons, 651
Porto Rico:
—Porto Rico Railways: Porto Rico:
—Porto Rico Railways:
Annual report, 732
Portugal: Portugal:

-Lisbon Tramways, Earnings and expenses, 1222
Power dispatching, Illinois Traction System [Fitch], *470
Power Distribution:

-Cable splicer's tool box, Minneapolis, *247
-Feeder-tap, Effect on schedule speed [Stahl], *991
-Feeder-tap protection, Comment, 659
-Feeder-tap protection, Comment, 659
-Feeder-tap resistance in rotary-converter practice [Creeclius], [Baugher], e799
-Fibre conduit installation for feeder taps, *1125
-Location of feeder-taps [Smith], 627
-National joint committee on line construction (See National Committee)
-Return circuits [Skelly], 794
-Review of 1914, 4
Power Generation:
-Diesel engines, insurance of, 1057
-Direct-connected exciters, 680
-Fuel values of coal, oil and gas [Hunter], 984; [Purtee], 984 -Lisbon Tramways, Earnings and expenses,

Power Generation: (Continued)

—Future central station development [Moyer], c987

—Obsolescence on a large scale, 742
—Oil fuel for standby service [Delany], 1106
—Review of 1914, 4
—Test of Diesel engine (McIntosh & Seymour), 639
—Transformer blower (Buffalo Forge), 639
Power Stations:
—New plant for Havana Ry., *920
—Norfolk & Western Railroad at Bluestone, 1063
—Possible lines of progress [Thomas], c939
—Remodeling 74th Street Station of Interborough Rapid Transit Co., 744
Power stations, Hydroelectrie:
—Rochester Railway & Light Co., 247
President of a railway, Qualifications, 503
President Wilson's address at mid-year meeting, 217, 275; Comments of the press, 278; Opinions [Shonts, Williams, Budd, Clark, Cummirgs], c290
Profits, Limiting, 149
Providence, R. 1:
—Rhode Island Co.:
—Federal dissolution decree, 479
Public, Relations with:
—Business conditions [Tripp], 185
—Complaint bureauts on various lines, 23
—Human nature and the railroad, 1099
—Management and public relations [Peirce], 459
—"Mixing" as an asset [Cooper], 842
—"Pointed paragraphs on public policy," 71
—Public-be-pleased policy, Review of current railway practice, 20
—Railways must give good service, 9
—Report of N. E. L. A. committee, 1107
—Csee also Referendums; Complaints, etc.)
Public Service Commissions:
—Annual Reports:
—Cahfornia, 771, 769, 815; Connecticut, 769; Indiana, 684; Missouri, 725; Washington, 528
—Commission organized in Wyoming, 728
—Conferences with officers of public utilities, 265
—Engineers as members [Cooley], 1158
—Exhibit at Panama-Pacific Exposition, 707
—Extension of powers in New Jersey, 598
—Investigation in New York (See New York City)
—Nominations recalled in Pennsylvania, 810
—Ohio Commission sustained by Supreme Court, 597, 598 Power Generation: (Continued)
—Future central station development [Moyer],
c987 City)

-Nominations recalled in Pennsylvania, 810

Ohio Commission sustained by Supreme
Court, 597, 598

-Public co-operation at commission hearings,
167

-Publication of annotated reports proposed,
250

Publication — Publicity by commissions [Cushing], c58
— Qualifications, Comment on, 699
— Regulation by, [Maltbie, Mitchel and Harrison], 810
— Regulation by commission. "Experimental service," 167
— Regulation of common carriers [Duncan], Regulation of common carriers
632
Service standards for St. Louis, 961
Utility law amended in State of Washington, 770
Views on regulation expressed at New York
State Constitutional Convention, 1086
Work during 1914. Care in choosing of personnel, 5
Public Service Corporations:
Co-operation and publicity [Kingsbury], 223;
Discussions [Ely, Connette], 216; Comment, 213 ment, 213

Order against duplication of facilities in California, 525

Policies criticized [Cooke], 522

Principles of taxation, 784

Regulation [Atterbury], 378

Publicity:

Advantages [Allen], 280

Atlanta, Ga. Newspaper advertising, 111

Brooklyn Rapid Transit Co., Publicity pamphlets, 205

Code of principles [Williams], 220; Discussions [Tripp, Brush], 214; Comment, 212

Cost figures, importance of 743 212
-Cost figures, importance of, 743
-Mailing communications with dividends, 613
-New publications:
Chicago Elevated Railways, 952
-Tri-City Railway & Light Co., 912
-Union Traction Co., Indianapolis, 820
-Virginia Railway & Power Company, Portland Railway, Light & Power Co., — Syndicated anti-railway news, *462; Comment, 499; [Waters], c 586
Puget Sound Electric Ry. (See Tacoma, Wash.)
Puget Sound Traction, Light & Power Co. (See Seattle, Wash.)
Pumps, Manhole drainage, Brooklyn, *247
Putnam & Westehcester Traction Co. (See Peekskill, N. Y.) R

Rail grinder, One-man (Equipment Engineering Co.), *475 Rail Joints and Bonds: —Maintaining the return circuit [Skelly], 794 —Short bonds costly [Fuller], 791

(Abbreviations: *Illustrated, c Correspondence.)

Rail Joints and Bonds: (Continued)
— Tests and costs of electrically welded joints [Price], 1156
— Track bonds, Norfolk & Western Railroad, 1067
Railless traction in Shanghai, China, 592 Track bonds, Norfolk & Western Railroad, 1067
Railless traction in Shanghai, China, 592
Rails:

—Corrugation, Harder rails suggested as preventative of [Sellon], 578
—Life of open-hearth steel compared with manganese steel, on curves, Brooklyn Rapid Transit Co. [Bernard], 383
—Manganese double-web guard rail [Bernard], *427
—Outfit for laying, Kankakee & Urbana Traction Co. [Shelton], *242
—Statistics of production for 1914, 832
—Titanium, Influence of, on segregation [Fitzgerald], 98
—Vanadium, Test of, Pennsylvania Steel Co., *388
—Wear in Chicago B. O. S. E. report, *1195
Railway Signal Association:
—Spring meeting, 1023
—Winter meeting, 582
Ralston, Neb.:
—Omaha & Lincoln Railway & Light Company
New issue of securities, 731
Rates, Railway (See Fares)
Reactance (See Transmission lines)
Reading, Pa.:
—Reading Transit Company, New line, 686
Receiverships and ioreclosure sales in 1914, 19
Record forms:
—Inspection report, Bridge and building, Chicago, Ottawa & Peoria Ry., *342
—Instruction department forms, Rochester, N. Y., 367
—Recording progress in assembly of equipment [Litchfield], *339
—Track maintenance [Hulett], *669
Recorder for passenger-mile earnings (Bonham Fare Recorder Co.), *948
Records:
—Equipment failures standardized, 1099
—Graphical, and their use, 1014

ecords;
—Equipment failures standardized, 1099
—Graphical, and their use, 1014
—Records as evidence, 657
—Trouble board record, Chicago Elevated,

— Trouble board record, Chicago Elevated,

555
Red Book ceases publication, 463
Referendums in Brooklyn, Kansas City, Boston
and Denver, 27
Registers (See also Fare Collection)
Regulation (See Public Service Corporations)
Repair shop equipment:

— Adjustable stand for forge shop, Blue Hill
Street Railway, *997
— Ash pit for blacksmith forges, Removable
[Jenkins], *425
— Cabinets for small stock at Holyoke, *899
— Coil-winding unit [Chubbuck], *1213
— Combination welding and cutting outfit (Imperial Brass Mfg. Co.), *997
— Goggles on grinder, 896
— Grinding machine for grids [Keller], *64
— Headlight test bench at Holyoke, *899
— Home made saw for light tubing [Parsons],

**849
— Hydraulic jack for pinion removal [Koppel],

*847

Portable electric drills (Western Electric "Temco"), *949

Portable lamp bank holder [Janis], *893

Reel for live conductor used in moving cars or trucks in shop [Parsons], *894

Switch for fixed or portable lamps in pit, *899

Repair shop practice:

Armature-room force, Denver Tramways,

1215

1215

Axles reclaimed by welding [Johnson], *294

Chicago Elevated R. R., *551; Comment, 540

Commutator soldering torch [Donovan], *1079

-Jig for planing bearing caps [Sutherland],

— Knife guard for jointer and hand planer [Johnson], *805
— Labor side of maintenance, 540
— Lamp bank for equipment tests, Portable [Hinman], *513
— Locating wheel lathe in floor recess, *1040
— Maintenance of all-steel cars on Long Island R.R., *566; Comment, 539
— Maintenance of pinions [Parsons], 638
— Milwankee Elec. Ry. & Lt. Co.'s procedure, *786
— Notched stick to steer wheel sets, New York

*786

Notched stick to steer wheel sets, New York
State Rys., *592

Publicity in the shop, Memphis, 699

Removing pinions [Ross], 800

Rethreading pinion-ends ["Vulcan"], *720

Safety co-operation with employees, *43

Scientific spirit in the shop, 1189

Repair Shop Practice: (Continued)
— Short circuits in field coils, Testing methods [Footel], *64
— Sleeves shrunk on worn armature shafts ["Vulcan"], *720
— Slotting commutators in motor shell [Koppel], *847
— Temporary drilling outfit at Holyoke, *1174
— Testing armature clearance [Lewis], 893
— Thrust plate for worn car axles [Vulcan], *635
— Trouble board, Tri City, Pailway, [Suthers -Trouble board, Tri-City Railway [Sutherland], *1078
-Voltmeter measurements of direct current, Table [McKelway], 341; Corrections, 427 Table [McKelway], 341; Corrections, 427

—Welding worn wheel flanges [Murphy], *719; Danger of [Hayes], *942; Comment, 917

Repair Shops:
—Cleveland Ry., Details of new buildings, 168; [Keen], c 290
—Evanston Kailway, *660
—Ilolyoke Street Railway, *930
—Norfolk & Western Railroad, *1069
—Springfield (Ohio) Ry., *556
Republic Railway & Light Co. (See New York City)

Rerailer for cars which serves as derailer for vehicles (Sargent), *594
Resistances (See Motors)
Rhode Island Public Utilities Commission, Report, 250
Richmond, Va.:
—Virginia Railway & Power Co.:
—Franchise matters, 252, 1088
New publication, 692
Riverside, Cal.:
—Riverside, Rialto & Pacific Railroad:
—Purchase by Pacific Electric Co., 690
Rochester, N. Y.:
—Buffalo, Lockport & Rochester Ry.:
Linemen's searchlight, *472
—New York State Rys.:
Annual report, 482
Complaint department, 23, 26
Courtesy of employees, 21
Cross arms, Malleable iron, on wooden poles, *297
Electrolysis developes defects in concrete poles [Throop], 294
Fare case, Three-cent, Arguments before commission, 117; Decision, 439
Instruction of employees, Methods of, and effect on the accident record [Lawson], 367
Passenger handling at Kodak Park, *838
Snow removal from under-running thirdrail [Himman], *469
Step lighting, 247
Telephone dispatching, *885
Train-operation, Methods, *752
Way records on cost-per-section basis [Falconer], c 1035
—Rochester Railway & Light Co., Hydroelectric plant, 247
Rockford, Ill.:
—Rockford City Traction Company:
Mutual Benefit Association, 735
—Rochester Railway & Light Co., Hydroelectric plant, 247
Rockford & Interurban Ry.:
Forming blocks for motor-case bolts [Graham], *296
Bond issue, 646
Rollings stock (See Cars)
Rome (Ga.) Railway & Light Co.:
—Car maintenance, 383
Runaway-car ston on Lackawanna & Wyoming Valley Ry., *706
Rollings stock (See Cars)
Rochedule adjustment, Portland, Ore, *138 -Welding worn wheel flanges [Murphy], *719; Danger of [Hayes], *942; Comment, 917

Safety-First Movement (See Accident Claim Dept.—Prevention)
St. Catharines, Canada:
—Niagara, St. Catharines & Toronto Ry.:
Pav-as-you enter interurban cars, *246
St. Louis, Mo.:
—Jitney bus, 648
—Service order, standards of operation, 961
—St. Louis Elect. Term. Ry.:
Safety record, 1197
—Service order fixing standards of operation, 961
—United Railways:
Annual report, 481
Children's tickcts, 260
Compromise of tax suit suggested, 1129
Earnings decrease, 253
Eliminating stops, 1136
Employees' magazine, 260
First home built under loan plan, 863
Headlight tests, 639
Manganese steel crossings [Hawkins], c 892
Mill-tax case, 112, 151, 349
Mill-tax decision, Opinion of Judge Walker, 70
Pension plan, 78
Rapid transit hearing, 204
Service inquiry, 77
Signs in cars, 77
Welfare work, 487
Salem, Ore.:
—Portland, Eugene & Eastern Railway: Salem, Ore.:
——Portland, Eugene & Eastern Railway:
One-man cars, 1136

INDEX. Salt Lake City:

—Salt Lake & Ogden Ry.:

Steel tie construction in electrically warmed concrete [Bamberger], *189

High-tension direct-current system, Details of, *54

—Utah Securities Corporation takes over properties, 435

San Antonio, Tex.:

—San Antonio Traction Company:

Advertising band concerts, 1136

Track construction [Smith], 1030

San Diego, Cal.: Track construction [55,55,5],
Track Construction [55,55,5],
Terminal facilities, *587

-San Diego Elec. Ry., Division of accident savings among employes, \$18 savings among employes, 818

San Francisco:

—Accident on Fillmore Street hill, 1137

—California Railway & Power Co.

Annual report, 436

—Central California Traction Company. Lease to Stockton Electric Railroad, 688

—Jitney bus, 256, 648

—Municipal Railway:

Annual report, 687, 1221

Earnings and expenses during 1914, 1004

Examination of employees, 355 Earnings and expenses during 1914, 1004
Examination of employees, 355
Extensions, 433, 1222
Geary Street carhouse cnlarged, 667
Stockton Street line, 112
—Ocean Shore R. R., Assessment, 816
—Pacific Gas & Electric Co.:
Bond issue, 816
Redemption of notes, 732
Stock distribution, 115
Stock dividend, 1180, 1004
—Public relations [Edicathal], 150
—Southern Pacific Co., Rate case, 120, 260
—Street traffic signal, *671
—Transfers between Municipal Ry. and United Railroads, 605
—Transportation facilities during Exposition, 259
—United Railroads:

259

-United Railroads:
Attitude toward the municipal railway,
250

Commission finds deficit, 1003

Experiences [Lilienthal], 150, 398

Low-floor, California type car, *1016

Policy as to extensions and improvements, 200

Protest against Municipal Ry's schedule,
1136

Two-car trains on 25% grade, *977, 1137 ments, 200
Protest against Municipal Ry's schedule, 1136
Two-car trains on 25% grade, *977, 1137
San Francisco-Oakland Terminal Rys. (See Oakland, Cal.)
Sand-spreading wagon for slippery pavement (Havass), 300
Sand, experiences with, Chicago, Ottawa & Pcoria Ry. [Carr], 143
Sand Tracks:
—Sand trough for stopping runaway cars on L. & W. V. Ry., *706
Sanford, Me., Atlantic Shore Electric Ry.
—Fare changes, 159
Santa Barbara (Cal.) & Suburban Ry.;
—Car-door operation [Lloyd], *590
Saskatoon, Can.:
—Sale of municipal railway proposed, 304
Sault Ste. Marie, Mich.:
—Preventing condensation in under-water conduit [Koppel], *296
Saving power (See Energy consumption)
Schedules and Time Tables:
—Application of traffic statistics to service [Doolittle], *928
—Preparing time schedules [Sloss], 795
—Schedule speed in city service, Importance of high speed, 29
—Schedule speed, Neglected factor, 742
—Scientific car schedules, Comment, 700
—Short headways, Advantages shown by jitney, 967
Schenectady, N. Y.:
—General Elec, Co., Annual report, 814
—Schenectady Ry.:
Fare schedule, 355
Rush-hour methods, 30
Scranton, Pa.:
—Lackawanna & Wyoming Valley Railroad:
—Sond stop for suppages *706*

Rush-hour methods, 30

Scranton, Pa.:

—Lackawanna & Wyoming Valley Railroad:
Sand stop for runaway cars, *706

—Scranton Railway:
Experience meetings, 735, 818
Extension ordinance annulled, 1227

Scrap material, Handling and selling [Alexander], 245
metals, Sales of [Alexander], 192;
[Yungbluth], c 381
Seating capacity of cars, Law limiting, Toronto, 399; (See also Loading limits for cars)
Seats:

Seating Capacity, 399; (See also Loading limits for cars)
Seats:

— New York Municipal Railway cars, *877

— Removable, collapsible for motorman (Electric Service Supplies), *1126
Seattle, Wash.:

— Jitney bus, 649

— Seattle Municipal Railway:

Accident at power plant, 952
Bond issue questioned, 770
Carbouse [Kennedy], *513
Cost of operation, 816
Double trolley system, [Kennedy], *128
Financial difficulties, 431, 480, 598
Lease plan defeated, 1219
Legal difficulties, 111
Mayor's veto on bond issue, 198

Seattle, Wash.:

—Seattle Municipal Ry.: (Continued)
Report for six months, 201
Right to operate, 523
Sale or lease suggested, 1178
Sale rejected, 72

—Municipal motor-bus fund, 199
—Puget Sound Traction, Light & Power Co.:
Change in street grade, *832
Jitney bus issue, 1093
Seattle-Everett fare reduction, 119, 311
Service order, 77, 776, 1094
Strike avoided, 767
Wallingford case, 819
—Seattle, Renton & Southern Ry.:
Fare case, 820
Purchase postponed, 434
Right-of-way condemnation proceedings abandoned, 728
Selling of car wheels, rails and scrap iron
[Alexander], 245
Shelters (See Waiting Stations)
Signal cord bushing, Fiber (Pahler), 248
Signals:
—Attaching signal wires to third-rail [Mc-Kelway], *1038
—Automatic flagman [Brach], 806
—Block system:
Cab signals, British view of, 125
Illinois Traction System. Installations
of 1914 [Leisenring], *408
Installation for city service in South
Bend, Ind. (Nachod), *1127
Interlocking installation on Pacific Electric Railway (General Railway Signal Co), *946
Maintenance methods, New York, West-chester & Boston Ry., *561; Comment, 539
Statistics for 1914, 18; Comment, 5
—Car stop and start, United Railway, St.
Louis, 652
—Control of Street Railway Signal Co. by
Electric Service Supplies Co., 680
—Highway-crossing protection. Report of Illinois Electric Railways Association, *174; Comment, 165
—Light:
Self-contained blocks, Illinois Traction
System [Leisenring], *409

Highway-crossing protection. Report of Illinois Electric Railways Association, *174; Comment, 165

Light: Self-contained blocks, Illinois Traction System [Leisenring], *409

Outdoor substations for, *807

Reports at Railway Signal Association meeting, 582

—Semaphore and automatic whistle for street traffic, San Francisco, *671

—Speed control system:

New York Municipal Railway cars, 878

—Steam railroad statistics, 138

—Testing signal circuits, 1023

Signs on cars:

—Destination signs, Legal difficulties in Chicago, 77

—Illuminated guide signs in England, *473

—Illuminated, with car and run numbers in Los Angeles [Stephens], 1169

—Street and station indicator, Los Angeles, Cal., 67

—Tail-light or classification light box, Rockford, Ill. [Graham], *424

—"We" slogan sign, Kentucky Traction & Terminal Co. [Bacon], c*292

Single-phase railways:

—Conversion to d. c. operation without interruption of service, Annapolis Short Line, *542

—Operating results on New Haven, 229

—Progress in a. c. electrification, 10

—Prussian State Railways, Silesian electrification, *666

—Vienna-Pressburg railway. Choice of system, inductive interference, rolling stock, *830

Snow removal:

—Cincinnati suggestions, 259

—Clearing an under-running third rail, New York State Rys. [Himman], *469

—Snow-sweeper with out-board broom, New York State Rys. [Himman], *469

—Snow-sweeper with out-board broom, New York State Rys. [Himman], *469

—Snow-sweeper with out-board broom, New York State Rys. [Himman], *469

—Snow-sweeper with out-board broom, New York State Rys. [Himman], *469

—Snow-sweeper with out-board broom, New York State Rys. [Himman], *469

—Snow-sweeper with out-board broom, New York State Rys. [Himman], *469

—Snow-sweeper with out-board broom, New York State Rys. [Himman], *469

—Snow-sweeper with out-board broom, New York State Rys. [Spangler], *591

Society for Electrical Development:

—Electrical prosperity week organization, 686

South Bend, Ind.:

—Chicago, South Bend & Northern Indiana Ry.:

Signals for city se

Chicago. South Bend & Northern Indiana Ry.:
Signals for city service, *1127
Southern Pacific Co. (See San Francisco)
Southern Pacific Co. (See San Francisco)
Southwestern Electrical and Gas Association:
—Convention, 1025
—Mid-winter meeting, 323
—Program plans, 495
—Question box, 1070
Specifications, Preparation of, Bay State Street Ry., 90
Speed indicator, electrical (Esterline Co.), *897
Speed indicator, recording (Holtzer-Cabot), 852
Speed of cars (See Schedules and time tables)
Speyer, Sir Edward, Retirement, 1176
Spokane, Wash.:
—Washington Water Power Company:
Appraisal, 727
Springfield, Mass.:
—Springfield, Mass.:
—Springfield Street Railway:
Arbitration with employees, 727
Electrolysis report, 507
Strike, 684, 812, 901, 950, 1000
Springfield, Mo.:
—Springfield Gas & Elec. Co., Rate ease, 110

Track Maintenance: (Continued)

— Pine ties reused after service of 21 years,
Brooklyn Rapid Transit Co. [Cram],

295

Real economy in, 1015

Records on cost-per-section basis [Hulett],

*669

Records on New York State Railways,

Syracuse lines [Roundey], *945

Result of neglect [Fuller], 791; Comments,

1065

- Result or neglect [Fuller], 791; Comments, 1065

- Shop equipment needed to turn out special work [Gausmann], 992

- Special manganese steel crossings [Hawkins, [Roundey], c 892

- Special work on steel structure, Muncie, Ind., Maintenance record, *68

- Tools, supplies and appliances [Cram], 1169

- Way department rule book to promote standard practice, Chicago, Ottawa & Peoria Ry., 89

- Way records on cost-per-section basis [Faconer], c 1035

- Weed cutter [Griffiths], *1121

Trackless trolleys:

- Considered in Pennsylvania, 150, 304

- In Shanghai, China, 592

Traffic Surveys:

- Importance of [Emery], c 1119

- Organization [Doolittle], 1160; Comment, 1141

- Schemes in Pittsburgh Boston & Kansas

Organization [Doubttle], 1100; Comment, 1141

—Schemes in Pittsburgh, Boston & Kansas City, 27

Traffic characteristics:
—Construction of models [Doubttle], c1077
—Statistical measurements [Doubttle], *926; Comments, 917

Traffic Control:
—Semaphore signals with automatic whistles, *671
—Recommendations of Safety First Federation of America, 1137

Traffic Investigations, Cities:
Detroit, 594, 664

Traffic, Rush-hour:
—Front-end conductors for congested points,

-Front-end conductors for congested points,

-Prizes for relief suggestions, New York Municipal Art Society, 1051 -Relieving congestion in various cities, 30

Municipal Art Society, 1051

—Relieving congestion in various cities, 30

Trailers:
—List of cities using, 31
—Operation in Rochester, N. Y., *752

Train resistance (See Power Consumption.)

Transfers:
—Cost of printing, 704
—Printing plant of Third Ave. Railway, *702
—Privileges in Lawrence Transfer Case, 651

Transformers, signal light (General Electric), *67

Transmission Lines:
—"Linemen as tightwire walkers," Portland, Me., *193
—Linemen's searchlights, Buffalo, Lockport & Rochester Ry., *472
—Mechanical cable connections [Fargo], *1216
—Mechanical and heating effects of short circuits, Reactance to limit [Gross], 132; Comment, 127
—Norfolk & Western Railroad, *1064
—Underground construction, Report of N. E. L. A. Committee, 1107

Transportation, United States department recommended by Howard Elliot, 741

Tri-City Railway & Light Company. (See Davenport, Ia.)

Tri-State Electric & Ry. Co. (See East Liverpool, Ohio.)

Trolley retrievers and catchers (Sterling), *343

Trolley-wheel oil-less bushings and non-arcing harps (More Jones), *474

Troley wire, location on curves [Foster], *62, *105

Trolley wire pick-up, Lehigh Valley Transit Co. [Branson], *295

Trolley wire pick-up. Lehigh Valley Transit Co. [Branson], *295

Trucks:

—Angularity on curves, *1079

—Maximum traction (Taylor Elec. Truck Co.),

*1126

Tueson, Ariz.:

Tucson, Ariz.:

—One-man cars sanctioned, 1049

Tulsa, Okla,:

—Tulsa Street Railway, One-man cars, 1136

Turbo-generators and Equipment:

—Arrangement of piping at remodeled 74th

Street Station, Interborough Rapid

Transit Co., 746

—Auxiliaries for new Havana power station,

1141

Springfield, Ohio:

—Springfield Ry.:

Repair shops and carhouse, *556
Starting resistance (Sec Motors)
Staten Island Midland Railway (New York City)
Stationery forms, economy in, 753
Statistics:

—Cars ordered in 1914, 16; Comment, 12

—Census report electric railways, Relation of traffic to population, distribution of income, classification of track mileage, private right-of-way, 96, 131

—Center of purchases and center of population, 166

—Coal and metal production in 1914, 92

—Economic conditions employees, Bay State Street Railway, *708

—Electric railway earnings in 1914, 815; Comments, 783

—Electric railway monthly earnings, 647, 690, 732, 774, 816, 861, 908, 957, 1005, 1047, 1133, 1181, 1223

—Express companies, 323

—Figures of Bureau of Fare Research (four months), 183; Comment, 269

—Indiana railways [Duncan], 456

—Indiana polis terminal station traffic, 440

—Milwaukee Electric Railway & Light Company, 645

—Operating statistics of the New Haven Road, 230, 231

—Passenger car orders since 1908, 644

—Passengers carried and accidents to passengers in New York, 134

—Rail production in United States, 832

—Receiverships and foreclosure sales in 1914, 19

—Signals installed during 1914, 18; Comment: 5 -Signals installed during 1914, 18; Com-— Signals installed during 1914, 18; Comment; 5

— Steam railroads, Report of Interstate Commerce Commission, 755

— Track built in 1914, 14; Comment, 12

— Wages of different industries, 726
Steel, Carbon-Vanadium forging (American Vanadium Co.), 1126
Steel construction, Terminology for [Keen], c290 Steel construction, Terminology for [Keen], c290
Stopping of cars:
—Cleveland, Skip-stop, 205
—Detroit, Mich., 311
—Indianapolis, Stops on both sides of street, 311 Influence of skip-stop on schedule speed, 742

Milwaukee, Wis., Skip-stop, 205

Near-side stop, List of cities with, 31

Ordinance in Springfield, Mo., 1184

Reduction in number of stops in St. Louis, 1136 Storage battery cars:

— Pall bearings, Value of [Farr], *344

— Third Avenue Ry., Ampere-hour meters on cars. 593

Strikes:
—Chicago, Ill., *1165; Comment, 1142, 1189
—Detroit United Railway, 951, 998; Comments, 969
—Fast Liverpool, 522
—In London, 998; Comment, 968
—Springfield Street Railway, 684, 812
—Syracuse, Empire United Railways, 726, 767; Comment, 783
—Wilkes-Barre, 726, 856
Subsidized extensions of street railway tracks in Cleveland, 951
Substations:

Short Line, *546 cars. 593 Cleveland, 951
Substations:

—Annapolis Short Line, *546
—Norfolk & Western Railroad, *1064
—Outdoor, Covington, Va. (Transmission Eng. Co.), *519

—Portable substations, Pittsburgh Railways

Company, *1030 -Rectable substations, Pittsburgh Railways Company, *10,39
-Rating of equipment, Comment, 1142, 1191
-Reclosing circuit breaker (Automatic Reclosing Circuit-Breaker Co.), 996
-Semi-outdoor portable, Berkshire Street Ry., *56

T

Training platform recruits, *704 Way records [Roundey], *945

Tacoma, Wash.:

—Puget Sound Electric Ry.:
Fare change, 77
—Short municipal lines open, 199 Rustless steel (Dover Boiler Works), 949
Tatra Ry., Hungary,1650-volt d.c. line, 248

Taxation: ation:
-Indiana railway statistics for 1914, 53
-Principles of, 784
-Real significance, 925
-Refunding illegal collection in Ohio, 770
-Wisconsin, Effect of increase in taxes upon public service companies [Gruhl], 234 Taxicabs:

—Operating costs, 621
Technical journal, Reading of [Cooper], c716
Temperature measurements using metallic salts
(Nehls Alloy Co.), 106
Terre Haute, Indianapolis & Eastern (See Indianapolis, Ind)
Testing equipment:

—Portable lamp bank [Hinman], *513
—(See also Motors)
Texas: Taxicabs: —Interurban consolidation bill passed, 1088 Texas Traction Company (See Dallas, Tex.) Third Rails: Third Rails:
Construction of 2400-volt line, Michigan Railway, *1146
Cable-end bell (Electrical Engineers Equipment Co.), *343
High-voltage third-rail construction, Suggested type [Tracy], *469
Snow removal from under-running third rail, New York State Rys. [Hinman], *469
Ficket-printing machine at Victoria station, Ticket-printing machine at Victoria station,
London, *473 Ties:

—Calculating total annual cost, 570

—Pine ties reused after service of 21 years,
Brooklyn Rapid Transit Co. [Cram],
295

Little in electrically warmed concrete, Brooklyn Rapid Transit Co. [Cram], 295
—Steel, Laid in electrically warmed concrete, Salt Lake City [Bamberger], *189
—Treated, Costs and methods of handling, 182
—Treating plant on Boston & Worcester Street Ry., *678
—Trough-shaped steel [Cambria], *766
—(See also Northern White Cedar Association)
Timber preservation:
—A. R. E. A. report, 570
—Creosote sources in U. S., 332
—Discussions at American Wood Preservers'
Association, 181, 237
—Treating plant on Boston & Worcester Street Ry., *678

Titanium (See Rails)
Toledo, Ohio:
—Contempt cases, 251, 1088
—litney bus, 649
—Municipal ownership discussion, 856, 1042
—Toledo, Fostoria & Findlay Railway:
Light-weight steel cars, 947
—Toledo Railways & Light:
Bond issue of city for purchase of railway, 390
Franchise matters, 109, 149, 643, 728, 769, 1087, 1220

Topeka, Kan.:
—Topeka Street Ry.: Bond issue of city for purchase of railway, 390
Franchise matters, 109, 149, 643, 728, 769, 1087, 1220
Topeka, Kan.:
Topeka Street Ry.:
Prasses discontinued, 119
Toronto, Canada:
Board of control and the transportation problem, 251
Municipal ownership suggestions, 1130
Rapid transit plans, 598
Regulatory bills rejected, 687
Toronto Railway:
Car capacity controversy, 399, 533
Decision on type of cars, 1136
Extensions, 249
Fender test, 391
Service extension controversy, 198, 347, 392, 903, 1094, 1176, 1183
Track construction:
By contractor or way department? [Gausmann], 895
Cost details, Buffalo, 135
Development in 1914, 7
Flange-bearing special work [Graves, Angerer, Wilson], c 1034 [Mitchell] c 1119
In paved streets [Brown], 1028
Laying out a compound curve, Two ways [Streizheff], *426
Manganese special work:
Experience of several companies on Pacific Coast, 576
Specifications, 1118
Standard composition, 755
Mysterious derailments [Williams], 1078
Non-splashing electric switch, 1083, 1127
Crane car, Third Ave. Ry. [Ryder], 763
Rail-laying outfit, Kankakee & Urbana Traction Co, [Shelton], *242
San Antonio Traction Company [Smith], 1030
Shockless railroad crossing, Pacific Electric Railway, *994
Special-work shop [Gausmann], *992
Statistics of 1914 for United States and Canada, 14; Comment, 12
Steel ties laid in electrically warmed concrete, Salt Lake City [Bamberger], *189
Track maintenance:
Flange-bearing special work beneficial, 871
Folding box for arc welding to protect public [Williams], *847
Joint repairs [Gausmann], 803
Life of open-hearth steel rails compared with manganese steel, on curves, Brooklyn Rapid Transit Co, [Bernard], 383
-Vife of way structure [Wilson], *1212
Manganese-steel crossings in Chicago, *711
(Abbreviations: *Illustrated. c Correspondence.)

—Losses in steam turbines, 785

Tuscaloosa, Ala.:

—Birmingham-Tuscaloosa Railway & Utilities
Co., Opening, 391

Twin City Rapid Transit Co. (See Minncapolis, Minn.)

Union Electric Co. (See Dubuque, Ia.)
Union Pacific R.R.:
—Gasoline-driven train (McKcen), *1215
Union Traction Company of Indiana (See Anderson, Ind.)
United Lt. & Rys. Co. (See Grand Rapids, Mich.)
United Traction Co. (See Albany, N. Y.)
Urbana, Ill.:
—Kankakee & Urbana Traction Co., Rail-laying outfit [Shelton], *242

Urbana, Ill.: (Continued)
— Urbana & Champaign Railway, Gas & Electric Co., Bond issue, 647
Utah Public Utilities proposed, 252

Valuation (See Appraisal)
Vancouver, B. C.:
——British Columbia Electric Ry. Annual report, 393
Fare reduction, 959
Fireproof carhouse, *227
eer, Wash.: Vancouver, Wash.:

—Washington-Oregon Corporation:
Reorganization, 954
Vehicular obstruction, Relieving, 29
Vending machine for electric cars [Drum], *388
Ventilation of cars, Chicago ordinance, 120
Vienna (See Austria)
Virginia Railway & Power Co. (See Richmond, Va.)
Voltmeter measurements of direct current, Table Voltmeter measurements of direct current, Table [McKelway], 341; Corrections, 427

W

Waiting stations and shelters:
——Practice in various cities, *33
Walworth, Wis.:
——Chicago, Harvard & Geneva Lake Railway,
——Bond issue, 689 — Chicago, Harvard & Geneva Lake Railway,
Bond issue, 689
War:
— Effect on railways in Berlin, 729, 813
Washington, D. C.:
— Capital Traction Company:
Annual report, 730
Mating of gears and pinions [Dalgleish], 942
— City & Suburban Ry., Change in zone system denied, 311
— Conductors required on trailers, 605
— Consolidation plans for street railways, 1223
— Crosser bill in Congress, 112, 199
— Merger of street railways, 305
— Potomac Electric Power Co.:
Christmas entertainment, 119
— Trailers, Hearing on, 355
— Washington, Berwin & Laurel Electric Ry.:
Fare zone petition denied, 78
— Washington & Maryland Ry.:
Valuation, 732

Washington, D. C.: (Continued)

—Washington & Old Dominion Ry.:

Decision on delayed delivery of material, Decision on delayed delivery of material, 1177

—Wasnington Railway & Electric Company:
Annual report, 771
Bond issue, 690
Christmas entertainment, 119
Company section, Meeting, 419
Profit-sharing results, 157

—Washington Utilities Co., Note offering, 816
Waste paper baling:
— Equipment, *66

—Methods [Youngbluth], c 239
Waste, Trade-marked, standardized waste (Royal Mfg. Co.), 1174
Waterloo, lowa:
—Waterloo-Cedar Falls & Northern Railway:
Steel parlor cars, *932
Welding, special methods:
—Dangers of welding worn wheel nanges
[Hayes], c*942; Comment, 917

—Folding box to guard public [Williams], *847
—Oxy-acetylene equipment (Imperial Brass), *517

—Oxy-acetylene weld on large casting, *898
Portable arcaywelding outfor n line car *1123 *517

Oxy-acetylene weld on large casting, *898

Portable arc-welding outfit on line car, *1123

Restoring worn wheel-flanges [Murphy]. 719

Wendelstein Ry. (See Germany)

West Jersey & Seashore Railroad:

Lease to Pennsylvania R. R. not approved.

Commission upheld by courts, 903

West Virginia:

Public Service Commission appointments, 1129

Public Itility Association — Tubic Service Commission appointments, 1129
——Public Utility Association organized, 953
Western Association of Electrical Inspectors, Convention, 285
Western Red Cedar Association:
——Annual meeting, 180
Western Society of Engineers:
——Electrification discussed, 579
Westinghouse Electric & Mfg. Co.:
——Absorbs Westinghouse Machine Co., 73
——Annual report, 1002
Wheaton, Ill., Aurora, Elgin & Chicago R. R.:
——Oil-saving filler for motor-axle cap, *66
Wheel grinder:
——Inexpensive type (Wheel-Truing Brakeshoe

-Inexpensive type (Wheel-Truing Brakeshoe Co.), *1175

-Cause of thick & thin flanges [Lloyd], 1037
-Derailments from worn flanges [Williams],
*1037

-Welding worn flanges [Murphy], *719; Danger of [Hayes], *942; Comment, 917

Wilkes-Barre, Pa.:

—Wilkes-Barre Ry.:

Center-entrance cars, *518, *593
Strike, 151, 726, 856, 1049

Willoughby, Ohio:
—Cleveland, Painesville & Eastern Railroad:
Annual report, 905
Wilson, President, Address at convention of American Electric Railway Association, 217, 275; Comments of the press, 278; Opinions [Shonts, Williams, Budd, Clark, Cummings], c 290

Window cleaner, Fixed squeegee for vestibuled cars, Third Avenue Ry. [Johnson], *339

Winnipeg, Can.:
—Service order, 525
—Stopping of cars, 159
—Winnipeg Electric Railway:
Annual report, 687
Reduction in dividend, 690
Service reduction, 819

Winona (Minn.) Ry.:
—One-man car, Experience with [Howard], *233; Comment, 212

Wiring cars:
—Change in code recommended, 285
Wisconsin Electrical Association:
—Convention proceedings, 232
Wisconsin Electrical Association:
—Convention proceedings, 232
Wisconsin Railway, Light & Power Co. (See Milwaukee, Wis.)
Wood, Treatment (See Timber Preservation)
Worcester Consolidated Street Ry.:
—Workester Consolidated Street Ry.:
—Equipment cost data, 427
Workmen's compensation (See Employees, Insur-Wilkes Barre, Pa.:
—Wilkes Barre Ry.: Equipment cost data, 427
Workmen's compensation (See Employees, Insurance) Y

Yonkers (N. Y.) Ry.:

—Near-side stop, 819
Youngstown, Ohio:

—Mahoning & Shenango Valley Railway &
Light Co.:
Company publication, 158
Freight rates, 311
Increase in wages, 735

Z

Zanesville, Ohio: -Southeastern Ohio Railway, Light & Power Company: Receiver appointed, 956

Adams, H. H. Motor ventilation, c 990 Alexander, J. P. Handling of scrap material, —Sales of scrap metals, 192

Allen, C. L. Address at mid-year meeting, 280
Allen, W. L. Railway motor gearing, 1201
Angerer, V. Flange-bearing special work, 1034
Archbold, W. K. The Vienna-Pressburg electrification, 989

Arthur, William, Filing of technical literature, c 511

Lecentric decime 1000

Locomotive design, c 1209
Austin, George E. Comments on insulating tape, 888
Bacon, F. W. The "We" slogan sign, c *292

В

Bamberger, J. M. Steel tie construction in electrically-warmed concrete, *189
Bancroft, William A. Zone system of fares, c 890
Barnes, J. P. What constitutes good and sufficient maintenance? 467
Baugher, E. C. Feeder-tap resistance in rotary-converter practice, c 799
Beagle, N. R. Chemical department of Illinois Traction System, 433
Bennett, H. K. Making the safety movement permanent, c 717
Bernard, M. Car life of plain curves, 383
Berry, V. W. Economical limit of the repair shop, 1027
Blackburn, A. A. Recruiting car at Belfast, *793
Bradlee, Henry G. Investment per passenger, Blackburn, A. A. Recruiting car at Belfast,

**793*
Bradlee, Henry G. Investment per passenger,

6 287

Branson, Harry. Brackets for carrying lifting

jack under side sill, **191*

—Trolley wire pick-up, **295*

Brown, B. R. Track construction in paved streets, 1028

Brownell, H. L. "Safety First for You and Me," 749

Brush, M. C. Brass band in the safety movement, c 845

Buck, A. M. Proportioning of railway motor resistances, **330

—Time element in controller notching, c *672

Budd, B. I. The President's address, c 290

Burritt, E. B. Washington conference and dinner, 187

AUTHOR INDEX Cadle, C. L. National electrical safety code, c 1936
Cameron, G. M. Calculation of starting resistances for railway motors, c 238
Carr, W. F. Railway sand experience, 143
Castiglioni, F. Chart for use in transforming motor speed curves for different voltages, *515
—Starting resistance for railway motors, c 336, c 381
Chubbuck, O. P. Coil-winding unit, *1213
Clark, James S. Car-load freight on small lines, 1114
Clark, W. J. The President's address, c 290
Cole, W. W. Causes of corrosion of underground structures, c 186
Cooley, M. E. Fngineers and public service, 1158
Cooper, II. S. Mating gears and pinions, c 890
—"Mixing" as an asset of public utility business, 842
—Reading a technical journal, c 716
Coors, W. F. Graphic commercial progression method for starting-resistance calculations, *761
Corning, J. W. Effects of incorrect starting resistances, c *93
Cram, R. C. Track tools, supplies and appliances, 1169
—Use of old pine ties, 295
—Warning signs to protect paving work in tracks under traffic, *893
Crecelius, L. P. Feeder-top resistance in rotary-converter practice, c 799
—National electrical safety code, c 941
Crosby, O. T. Code of principles, c 370
Cummings, J. J. The President's address, c 290
Cushing, W. F. Publicity by public utility commissions, c 58 D

Dalgleish, R. H. Notes on gears and pinions,

**942

Dana, Edward. Dispatching city cars, **802

—Graphic comparisons of accidents, **58

Decamp, H. C., Human element on electric railways, 1157

Donovan, J. C. Commutator soldering torch, **1079

Doubtile F. W. Traffic characteristics, **026 Doolittle, F. W. Traffic characteristics, *926,

(Abbreviations: *Illustrated, c Correspondence.)

Doolittle, F. W. Organizing the traffic survey, 1160 Duncan, Thomas. Regulation and railway rates, 456

E

Earle, S. C. Bettering the use of English, c 94 Edmunds, V. L. Registration of fares, c 716 Emery, J. A. Traffic characteristics and invest-ment per revenue passenger, c 1119

Falconer, D. P. Way records on a cost per section basis, c 1035
Farlow, W. B. Low-floor California-type car, 1016
Feustel, Robert M. Investment per passenger, c 1077
Fisher, D. G. Presidential address, Southwestern Association, 1027
Fisher, Dr. H. E. Chicago Elevated Ry. medical methods, *1192
Fitch, G. L. Power dispatching, *470
Foote, F. J. Methods of testing for short circuits in field coils, *64
Foster, S. L. Location of trolley wire on curves, *62, *105, 142, 191, *244
Fox, Ralph. Baffle plate for motor axle bearing caps, *424
Fuller, Carl H. Deferred maintenance, 791

Ganz, A. F. Corrosion of metals in natural soils, c420
Gausmann, S. Joint repairs, *803
— Methods and costs of concreting modern pavement, 718
— Special-work shop for electric railways, *992
— Track work by contractor or way department? 895
George, F. K. Results of safety work, 794
George, S. G. (See Rettger, E. W.)
Gibbs, George. Electrification of the Norfolk & Western Railway, 581
Gove, Wm. G. Testing railway motor insulation, c 1119
Graham, J. N. Forming blocks for motor case bolts, *296
— Illuminated train-number box, *341

Tail-light or classification light box, *424
Graves, W. F. Flange-bearing special work,
c 1034
Criffith P. F. Northern Texas Traction weed

Griffiths, R. E. Northern Texas Traction weed cutter, *1121
Gruhl. Edwin. Increased taxation in Wisconsin and its effect upon public service companies, 234

H

Hanna, J. H. National electrical safety code, c 1036

Harding, C. F. Calculation of starting resistances for railway motors, c 186

—Education and the code of principles, c 58

Harte, Charles Rufus. The Vienna-Pressburg electrification, c 989

Harvie, W. J. Bureau of Standards' safety rules, c 758

Hawkins, C. L. Recent manganese steel crossings, c 892

Hayes, Morgan D. Danger of welding processes as applied to tires and wheels, *942

Hellmund, Rudolph E. Advantage and limitations of railway motor ventilation, *833

Henming, R. N. Accounting and mechanical departments, 1153

Henderson, G. R. Important factors in steam railway electrification, c 380

Hewes, J. E. Collection and registration of city and interurban fares, 466

Hinman, F. L. Portable lamp bank for equipment tests, *513

—Removing snow from under-running third rail, *469

—Restoring loaded freight cars to side bearings in rounding short curves. *425 rail, *469

—Restoring loaded freight cars to side bearings in rounding short curves, *425

Hixson, L. T. Analyzing the balance sheet, 1112

Howard, R. M. Experience with one-man electric car in small city, *233

Hulett, Frank W. Way records on cost per section basis, 669

Hemming, R. N. Relation between accounting and mechanical departments, 1153

Hunter, E. H. Fuel values of coal, oil and gas, 984

J

Jackson, D. C. Teachers and the industry, c 93
Jenkins, J. R. Removable ash-pit for blacksmith forges, *425
Johnson, A. R. Case-hardened collar and welding reclaim worn button-end axles, *294
—Fixed squeegee for vestibuled cars, *339
—Knife guard for jointer or hand planer, *805
—Sandbox opened by fender trip, *106
Johnson, J. J. The jitney situation, 985

K

Katté, E. B. Maintenance costs on the New York Central Railroad, 580
Keen, C. G. Semi-steel cars in collision, c *715
— Terminology for steel construction, c 290
Keller, C. L. Locomotive and trail cars in Detroit, United freight service, *848
— Machine for grinding home-made grids, *64
Kennedy, H. J. Carhouse of Seattle Municipal Railway, *513
— Double trolley system in Seattle, *128
Kingsbury, N. C. Public service and publicity, Koehler, C. H. Meters and men, c'633 Koehler, C. H. Meters and men, c633
Koppel, J. G. Ground wire alarm, *144
—Home-made junction box, *383
—Hydraulic jack for pinion removal, *1039
—Preventing condensation in under-water conduit, *296 -Slotting commutators in the motor shell,

L

Laney, C. J. Is the handling of free baggage
a traffic error, 412
Lawson, A. J. Tramways in the United Kingdom, Analysis of operating results, 929
Lawson, George. Results obtained by instruction department of New York State
Railways, Rochester lines, 367
Layng, J. F. Economies in operating small cars, Layng, J. F. 1 *979 Leisenring, John. Signaling on the Illinois
Traction System, *408
Leonhauser, H. A. Maintenance cost reduction
by proper handling of equipment and
departmental co-operation, 384
Lewis, A. P. Checking air gap by solder spots,
893
Eliminating fulls to reduce spice of the spots.

—Eliminating frills to reduce paint cost, 847
—Home-made cast-iron axle bearing, *760
—Testing motors for electrical and mechanical conditions, 1037
Lewis, E. L. The jitney bus in Los Angeles, c 757

Litchfield, Norman. Recording progress in con-struction of cars and assembly of equipment, *339 Lloyd, J. N. Car-door operation with sprocket chain and worm shaft, *590 Lloyd, M. M. Cause of thick and thin wheel flanges, 1037

M

McGrath, D. J. Investment required per passenger, 881

McAloney, W. H. Mating gears and pinions, e 990

—Uniformity in car colors, c 468

—Working ordinary and hard gears and pinions together, *803

McCollum, Burton. (See Rosa, E. P.)

McIntire, J. B. Engineering considerations in a proposed line, e 799

McKelway, G. H. *Attaching signal wires to third-rail, *1038

—Dead-ending feeders to metal poles, *143

—Safe and unsafe way of cutting concrete, *993

Voltmeter measurements of direct current —Voltmeter measurements of direct current, 341
Meriwether, Richard. Welfare and educational work among employees, 1029
Mitchell, L. A. Flange-bearing special work, c 1119
Mills, John F. Investigating and handling automobile accidents, 1203
Moyer, J. A. Future central station development, c 987
Mulder, H. J. Maximum motor input, c 511
Murphy, F. A. Restoring steel wheel flanges with a welder, *719
Muskat, Carl. Wisconsin's compensation law, 234 -Voltmeter measurements of direct current,

Neereamer, A. L. Report of secretary-treasurer of Central Electric Railway Association, 413 Nottage, C. H. Electric railway freight in Maine, 1213

Palm, C. I. The jitney bus, 795
Palmer, L. R. Organized safety, 936
Palmer, W. K. Value of published costs, c 845
Parshall, H. F. Motor overloads and flashing, c 57 Palmer, W. K. Value of published costs, c 845
Parshall, H. F. Motor overloads and flashing, c 57
Parsons, R. H. Block to protect switch blades of type-K controllers, *386
—Home-made saw for light tubing, commutator bars, etc., *849
—Oil bath tank, *65
—Painters' putty and shellae for repairing controller division plates, 470
—Pointers on the installation and removal of pinions, 638, *674
—Power reel for cars, trucks, etc., *894
—Use of gas flame in removing pinions, c 988
—Ventilating scheme for increasing motor output, *1170
Phillips, W. H. Mating gears and pinions, c 891
Phillips, F. R. Ventilated motors, c 1209
Pontecorvo, G. Italian three-phase electrifications, *450
—Three-phase Italian passenger locomotives, *283
Price, E. C. Track joining and bonding, 1156
Priest, Edward D. Self-ventilated railway motors, c 891
Purtee, L. G. Fucl values of coal, oil and gas, 984

Q

Quick, Howard P. The passing of a great engineer—Dr. F. S. Pcarson, c 988

R

Ralston, S. M. Interurban fares in Indiana, 456
Reed, D. A. Workingmen's compensation in
Pennsylvania, 980
Remington, G. W. Sclection of city motor equipment, 675
Rettger, E. W., and S. G. George. Stress analysis of the Chicago steel car, e *291
Richey, Albert S., Bay State arbitration, e 758
Ricker, C. W. New power station for Havana,
*020
Roberts, Clarence, Training steam railroad men Roberts, Clarence. Training steam railroad men for cleetrical operation, *970 George F. Automatic registration of fares, e 844

Rosa, E. B. National electrical safety rules, 750

—The safety code, e 939

—and Burton McCollum. Corrosion of metals in natural soils, c 419

Ross, A. A. Removing pinions from motor axles, c 800

Roundey, E. P. Recent manganese steel crossings, c 892
—Way records, *945
Ryder, E. M. T. Crane car for track work, 763

S

Saunders, George B. Utility appraisals, 984
Schneider, E. F. Making the safety movement permanent, c 800
Scott, Charles B. Making the safety movement permanent, c 801
See, P. V. Painting cars in two days, *584
—Relay setting to maintain uniform acceleration, *761
Shelton, T. W. Rail-laying outfit on the Kankake & Urbana Traction Co., *242
Sherwood, E. C. The three-in-one car, *1121
Shonts, T. P. The President's address, c 290
Simmon, K. A. Calculations of starting resistances for railway motors, c 238
Skelly, F. V. Railway return circuits, 794
Slater, F. R. Advertising influence of the employee, 1029
Sloss, L. L. Time schedule, 795
Small, Oren A. Electric light and power accounting, 1113
Smith, Charles H. Feeder-tap protection and care of commutators, 827
Smith, G. W. Track re-construction in San Antonio, 1030
Spängler Ludwig. Motor cars supplant horses for drayage in Vienna, *637
—Trailer wagons in Vienna snow removal, *591
Sprague, Frank J. Regenerative braking, 4076
Squier, C. W. Equipment defects, *102, *242, *382, *591, *635, *677, *740
Stahl, Nicholas, Effect of remote feeder taps on schedule speed, *991
Stearns, R. B. Zone fares in Milwaukee, *836
Stephens, E. L. Los Angeles illuminated destination signs, *1169
Storer, N. W. Electrification on New Haven road, c 335
Stott, H. G. Rational units for the boiler room, c 468
Striezheff, S. Two ways of laying out a compound curve, *426
Strong, Elmer E. Telephone dispatching in city service, *885
Sutherland, John. Balanced door-operating mechanism, *1038
—Tri-City trouble board, *1078
—Tri-City railway bearing practice, *944

T

Tanis, G. B. Improved portable lamp bank holder, 893
Thomas, Carl C. Possible lines of power plant progress, c 939
Throop, H. G. Electrolysis develops defects in concrete poles, 294
Tingley, C. L. S. National electrical safety code, c 845
Tinnon, John B. Paving experience at Joliet, 1079
Tracy, A. H. High-volters this have 179 H. High-voltage third-rail constru<mark>c-</mark> on, *469

W

Wade, A. Maintenance of cars at Rome, Ga., 383
Waterman, F. N. Corrosion of metals in natural soils, c+20
Waters, W. T. The jitney bus and syndicated news, c 586
Weeks, I. W. Federal reserve system 222
Welsh, H. S. Interest rates on public utility bonds, c+137
—New Jersey decision, c 57
Welsh, Maurice A. Welfare measures for employees, 841
Whitney, G. C. Company section movement, c 511
Williams, R. P. Derailments from worn flanges, *1037
—Folding box to guard the public when weld-*1037

—Folding box to guard the public when welding track, *847

—Mysterious derailments, 1078

Williams, T. S. The code of principles, 220

—The President's address, c 290

Wilson, George L. Flange-bearing special work, c 1034

Wilson, T. H. The jitney situation, c 421

—Jitneys vs. light cars, e 1206

Wilson, P. Ney. Life of way structure, *1212

Wilson, Woodrow, President. Address at meeting of American Electric Railway Association, 217, 275

Y

Yungbluth, B. J. Baling waste paper, shavings and excelsior, e 239 ——Sale of scrap metals, c 381

PERSONAL

Adams, Charles Francis, 653 Aldred, J. E., 778 Alexander, Harry W., 79 Alexander, Walter, 312 Allean, Edgar, 488 Allen, J. Drew, 1051 Allen, Walter Spooner, 737 Allison, Giles S., 121 Anthony, Nathan, 160 Armstrong, Alexander, Jr., 312 Atherton, F. B., 736

Atherton, F. B., 736

Baird, J. L., 312

Balfour, Robert A., 401

Baltzer, A., 312

Bamberger, Julian M., 1227

Bamcroft, William H., 913

Banghart, C. S., 442, *448

Barnard, F. S., 312

Beach, H. L., 442, *534

Beck, A. E., 400

Bennett, S. H., 312

Benz, G., 356

Berliner, R. W., 1185

Bibb. W. A., 206

Blain, H. E., 356

Bock, E. J., 120

Borchers, William, 694

Brain, O. W., 778

Brewster, John C., 313

Bronsdon, M. H., 653

Brown, C. E., 356

Brown, John W., 1185

Brown, John W., 1185

Brown, Richard S., 1227

Budlock, George, 312

Butt, Byron T., 1185

Byllesby, H. M., 442

Callahan, B. L., 206
Campbell, R. V., 1137
Cantrell, Deaderick, H., 820, 913
Capitain, Henry D., *864
Cargill, Walter N., 400
Carmalt, James W., 79
Carr, James O., 864
Carraway, Leake, 442
Carroll, Edward J., 400
Chadwick, C. J., 1137
Chapman, C. T., 442, 488
Chapman, C. T., 42, 534
Clay, Herbert, 261
Coliente, William W., 313
Clapp, Harold W., 1009
Clapper, Will, 442 534
Clay, Herbert, 261
Colette, H. S., 912
Collins, J. V., 652
Colvin, C. W., 312
Cook, R. S., 736
Coons, Charles A., 820
Cooper, C. P., 312
Coogrove, Robert E., 261
Couch, H. C., 1051
Cox., George M., 79, 261
Crilly, John A., 778
Cronbach, Ernst, 161
Crook, R. W., 1227
Crosby, Oscar T., 606
Curran, D. D., *121, 160
Curtis, Rodney, 1051
Curtis, T., 206
Cutter, George, 778
Dally, David, 442, *1051

Daly, David, 442, *1051 Davidson, A. T., 488 Davis, W. L., 206 Day, Joseph P., 1009 De Lamarter, L. J., 400 Dewey, Francis H., 1095 Dibbins, W. J., 1009 Dill, S. J., 312 Donlon, Joseph, 121

Dows, S. C., 736 Draper, Walter A., 160 Drayton, Henry Lumley, 1137 Duffy, C. Nesbitt, 488 Dunn, Sherman W., 606

Eagleson, Freeman T., 1095 Eastman, Joseph B., 120 Edwards, Allen F., 1095 Elwell, Charles C., 534 Englis, John, 736 Estabrook, G. L., 400 Evans, Martin, 864 Erickson, Halford, *912 Ewing, M. C., *261

Fairchild, C. B., Jr., 1137 Feustel, Robert M., 400 Fisher, F. E., *206 Flanigan, C. D., 312 Foote, W. A., 778 Foraker, J. Benson, 864 Fuller, Arthur B., 261 Fuller, Carl H., 1009 Fuller, F. L., 488

Gaboury, J. A., 736, 778
Gahagan, H. I., 120
Gaither, Walter H., 79, 160
Garner, John P., 1051
Gausmann, Samuel, 534
Geary, W. P., 912
Gilman, William A., 962
Glazier, Harry, 261
Gonzenbach, Ernest, 1051
Goodrich, Donald, 913
Graham, Edward M., 261
Green, Thomas, 1095
Greeley, John E., 160
Griffith, C. J., 442
Guckel, Charles II., 820
Gunnison, Stanley Eaton, 1009

Gunnison, Stanley Eaton, 1009

Hagerman, H. M., 160
Hale, Joshua, 1185
Hall, Henry Clay, 79
Hall, W. R., 534
Hamel, William S., 261
Hamilton, D. G., 401
Hamilton, George, 1095
Harries, George II., 488
Harries, Herbert L., 1095
Harries, Charles, 160
Harrsen, Harro, 534
Hartung, H. C., 442
Hawkins, N. H., 736
Hayes, W. S., 913
Hayward, William, 694
Hazlitt, W. H., 400
Heft, N. H., 488
Hemingway, W. L., 820
Hendrie, John Strathearn, 1137
Henry, Charles L., *488
Henry, G. S., 120, 160
Henry, S. T., 1227
Herrin, J. C., 736
Higgins, Wallace E., 1051
Hilliard, Thomas, 1051
Hoag, C. A., 312
Honnold, O. A., 534
Hood, Smith, 606
Horner, Edward, 120
Hornung, J. H., 261

Ireland, L. G., 1137

Ireland, L. G., 1137

Jackson, Carl D., 261, 312 Jenks, C. O., 1095 Jones, H. T., 160, *207

Kavanaugh, William M., 443 Keele, A. R., 312 Keim, Lewis, 488 Kelly, John T., 962

Kingsley, Darwin P., 1051 Knapp, Z. E., 357 Kucera, Joseph A., 820

Ladd, Charles II., 401
Landis, Lee II., 160
Langdon, Lawrence K., 1095
Leach, Thomas A., 963
Learned, Clarence E., *653
Leo, J. W., Jr., 120
Leonard, H. Ward, 401
Levinson, L. M., 606
Libby, Charles F., 1137
Linen, James A., Jr., 736
Loop, C., 312

Linen, James A., Jr., 736
Loop, C., 312
McCarthy, P. O., 206
McCloskey, Hugh, 312
McCullum, J. Grant, 207
McCulloch, George F., 694
McCulloch, George F., 694
McCulloch, Richard, *443
McElroy, James F., 356
McGrath, W. H., *261
McMillin, Emerson, 1185
Mack, John M., 313
Mackenzie, Alexander, 1009
Mackintosh, John G., 1137
MacLean, John E., 160
Magoon, W. W., 443
Maltbie, Milo R., 694
Mandelick, W. E., 120, 357
Marcum, James O., 694
Marquardt, J. C., 864
Martin, Burr, 120
Martin, Carl N., 962
Martin, Thomas W., 912
Martin, W. L., 606
Massengale, Lee, 737
Mather, Thomas H., 160
Mathews, E. L., 534
Matthew, H. T., 1227
Merrill, J. H., 1185
Mitchell, Guy E., 120
Mitchell, James, 606
Moore, E. Blaine, 606
Moore, John S., 488
Morrell, C. K., 606
Morrison, Norman, 206
Moyer, C. C., 1009
Mueller, John A., 778
Mumford, Charles C., 312
Murdock, Samuel T., 1009
Murphy, John D., 737
Murphy, P. J., 1051
Myers, W. C., 1009
Manton, A. M., 488
Neal, Henry V., *313
Nelson, J. M., 356

Neal, Henry V., *313 Nelson, J. M., 356 Newton, H. S., 606 Nutting, Harry G. D., 160

O'Connell, William, 736

O'Connell, William, 736

Palmer, W. L., 312, 400
Parker, James D., 313
Parker, William, 534
Parry, David McLean, 963
Parshall, Horace Field, 1227
Pearson, F. S., 963
Pennypacker, Samuel W., 79
Pepperman, W. Leon, 652
Pevear, J. S., 312
Pneuman, J. M., 160
Poor, Henry W., 778
Prather, H. C., 534
Price, Charles S., 161
Proctor, C. L., 652
Purinton, A. J., 1051
Purvis, Allen, 400, 736
Rabe, T. H., 736

Rabe, T. H., 736 Rathenau, Dr. Emil, 1227 Rathbun, E. W., 534 Ray, William D., 606 Reagan, L. S., 912 Ream, Norman B., 356 Reese, Daniel W., 400

Richardson, John Wesley, 313
Richey, Albert S., *652
Riddle, Samuel, 261
Rider, John Hall, 261
Risser, George W., 401
Robbins, C. H., 778
Robertson, C. H., 206
Rogers, A. G., 160
Rogers, G. Tracy, 534
Rogers, S. C., 1051
Ross, J. P., 736
Rothery, J. C., 606
Russ, S. H., 160
Russel, George H., 1009
Rye, L. F., 1227

Sanborn, C. H., 1009
Sanborn, H. H., 736
Sanderson, E. N., 400
Sawtelle, Walter L., 963
Sawyer, P. B., 79
Sawyer, W. H., 1009
Sears, Russell A., *312
Shaw, E. P., Jr., 963
Siddons, Frederick L., 356
Simons, J. W., 120, 160
Slocum, John W., 778
Smith, Frank Sullivan, 1185
Snyder, H. C., 442
Somers, Herbert John, 864
Southard, F. R., 1227
Speyer, Edgar, 1009, 1095
Stacky, John W., 736
Stanley, Albert M., 652
Steckel, W. A., 160
Stichter, R. B., 120, *161
Stickle, Linus H., 820
Strandborg, W. P., 534
Sullivan, J. V., 864

Taaffe, W. H., 534
Talmadge, O. G., 160
Tarkington, W. B., 207
Taylor, Frederick Winslow, 653
Thomas, J. P., 356
Thompson, E. B., 206
Thyse, Emil N., 778
Townley, Calvert, 864
Trimble, Robert, 606
Turner, William F., 778

Van Viense, A. T., 820 Von Schrenk, Arnold, 206 Veley, Elmer, 864 Verner, J. P., 864 Veser, L. O., 1095 Vreeland, H. H., 912

Veser, L. O., 1095
Vrecland, H. H., 912
Wadsworth, Eliot, 652
Walcott, W. S., 778
Walker, Howard, 400
Wallace, Charles F., 962, 1185
Waltermire, Beecher W., 312
Warfield, F. Howard, 312
Watson, James O., 606
Webster, Frank W., 261
Weisenfluh, J. E., 736
Wells, Joseph S., 442
West, George S., 160
West, W. S., 161
Westman, A. W., 121
White, Clinton, 912, 1009
White, Pope Y., 312
Whiteley, Calvin, Jr., 1009
Whitley, C. W., 442
Whitridge, Frederick W., 1137
Wickersham, L. B., 694
Williams, Robert E., 261
Winslow, E. F., 864
Wissel, A., 443
Wolff, S. E., 400
Wood, Clark V., *1095
Woodward, W. O., 534
Worman, P. H., 261
Wright, J. A., 120

^{*} Denotes Portrait.