

2

165-12
Bal
20

Electric Railway Journal



12641

Volume 53

January to June, 1919

McGraw-Hill Company, Inc.

Tenth Avenue at Thirty-sixth Street

New York City

TF
701
T75

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 of them. In addition, a geographical reference is published wherever the article relates to any particular railway company, or to the State matters of any particular State. The geographical method of grouping serves to locate in the index any article descriptive of practices, conditions, events, etc., when the searcher knows the electric railway, city or State to which the article applies. Groupings are made under the name of the city in which the main office of the company is located, but an exception is made in the case of electrified sections of steam railroads, such entries being made direct under the name of the railroad. City or State affairs appear direct under the names of the city or State involved.

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 common keywords used in the index to this volume. 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 tower wagons he would obviously look in the list under the general subject "vehicles," and of the two keywords that appear under this caption, only "Service and tower wagons" could apply to the article in question. The reader would therefore refer to this keyword under "S" in the body of the index.

In addition to the groups of articles covered by these headings the papers and reports from railway associations are grouped under the names of the various organizations. Proceedings of other societies are indexed only in accordance with the subject discussed. 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.

CLASSIFIED LIST OF KEYWORDS

CARS AND OTHER

VEHICLES
Car design
Cars (descriptive)
Motor buses
Motor cars, gasoline
One-man cars
Work and wrecking cars

CAR EQUIPMENT

Axles
Bearing metals
Brakes and compressors
Controllers
Current collection
Gears and pinions
Motors
Trucks
Wheels

EMPLOYEES

Employees
Labor
Wages

FARES

Fare collection (including apparatus)
Fares
Fare increases
Zone fare system

FINANCIAL AND LEGAL

Franchises
Legal
Markets
Operating records and costs
Public service and regulative commissions

HEAVY ELECTRIC TRACTION

Heavy electric traction (general)
High-voltage d.c. railways
Locomotives

MAINTENANCE OF EQUIPMENT

Paints and painting
Repair shop equipment
Repair shop practice
Repair shops
Tests of equipment
Welding, special methods

POWER

Energy consumption
Feeders
Overhead contact system
Poles

Power distribution

Power stations and equipment
Power station practice
Substations and equipment
Substations, automatic
Third-rail contact system
Transmission lines

TRACK AND OTHER STRUCTURES

Bridges
Power stations and equipment
Rails
Repair shops
Special work
Ties
Track construction
Track maintenance
Waiting stations

TRANSPORTATION AND TRAFFIC

Freight and express
Operating records and costs
Publicity
Signals
Stopping of cars
Traffic improvement
Train operating practice

INDEX TO VOLUME 53

PAGES BY WEEKS

January 4	1 to 80
January 11	81 to 124
January 18	125 to 168
January 25	169 to 214
February 1	215 to 262
February 8	263 to 304
February 15	305 to 350
February 22	351 to 392
March 1	393 to 442
March 8	443 to 494
March 15	495 to 550
March 22	551 to 628
March 29	629 to 676
April 5	677 to 722
April 12	723 to 766
April 19	767 to 810
April 26	811 to 850
May 3	851 to 898
May 10	899 to 944
May 17	945 to 990
May 24	991 to 1034
May 31	1035 to 1078
June 7	1079 to 1130
June 14	1131 to 1200
June 21	1201 to 1254
June 28	1255 to 1300

A

Aberdeen Corporation Tramways (see Great Britain)

Akron, Ohio:
—Northern Ohio Tr. & Lt. Co.:
 Franchise negotiations, 427
 New terminal at Akron, *681

Albany, N. Y.:
—United Tractor Co.:
 Electric railways had hit by war (Weather-
 way), 1177
 Wheel grinder, 963

Allentown, Pa.:
—Lehigh Valley Transit Co.:
 Annual report, 799
 Snow fighting equipment, *193
 Value of appreciated employees (Spring),
 475

Alloys for bearings discussed, 699

American Electric Railway Assn.:
—Bureau of information and statistics, 880
—Committee appointments, 284
—Committee of One Hundred, 1224; 1279
—Company section meetings:
 Connecticut company, 284; 655; 704; 925;
 1111
 Chicago Elevated Rys., 244; 532; 704
 Manila, 196; 532; 834
 Public Service Railway, 373; 926
 Rhode Island, 794
 Toledo, 285
—Executive committee meetings, 521; 1180
—Mid-year meeting, Proceedings, 516; Papers
 (Taylor), 498; (Crowell), 500; (Gruhl),
 502; (Sisson), 506; (Elmqvist), 509;
 (Kealy), 511; (Drum), 513; (Ainey), 514

American Electric Railway Engineering Assn.:
—Executive committee meeting, 196
—Committee assignments and appointments, 609

American Electric Railway Transportation &
 Traffic Assn.:
—Executive committee meeting, 244
—Committee appointments, 610

American Engineering Standards Assn.:
—Constitution, 407; 859; 1100

American Institute of Electrical Engineers:
—Heavy electric traction discussed, 605
—Welding discussed, 370

American Railway Association:
—Engineering Section convention at Chicago,
 69
—Mechanical Sections convention at Atlantic
 City, *1232; 1268

American Short Line Railroad Assn.:
—Convention at Washington, 1172

Anderson, Ind.:
—Union Tractor Co.:
 Annual report, 618
 Cinder ballast (Mitchell), 106
 Cleaning and saturating waste, *766
 Cooling tempering oil, *132
 Home-made locomotive, *1234
 Home-made air hoist, *1234
 Power house economies (Kelsay), *455
 Artificially priced standards discussed, 764
 Ash pit door (American Steam Conveyor Corp.),
 789

Atlanta, Ga.:
—Georgia Ry. & Pr. Co.:
 Increased fare decision, 622; 715; 843
 Aurora, Elgin & Chicago Ry. (see Wheaton, Ill.)

Automatic substations (see Substations, auto-
 matic)

Axles:
—Practice at Belfast (Vernon), *961; 971

B

Baltimore, Md.:
—United Rys. & Elec. Co.:
 Annual report, 1067
 Retouring in business district (Palmer),
 *1082

Bangor, Me.:
—Chamber of Commerce urges study of utility
 question, 332

Bay State Street Ry. (see Boston, Mass.)

Bearing metals discussed, 699

Belfast City Tramways (see Great Britain)

Belgium:
—Governmental plans for electrification, 998
—Powered tramways, 746

Berkshire Street Ry. (see Pittsfield, Mass.)

Binghamton, N. Y.:
—Binghamton Railway:
 Flea for fare increase, 343

Birmingham, Ala.:
—Birmingham Ry., Lt. & Pr. Co.:
 Receivership, 250
 Results of publicity, 1064

Boilers:
—Superheater for existing boilers (Locomotive
 Superheater Co.), *696

Boston, Mass.:
—Bay State Street Ry.:
 (Name change objected to Eastern Massachusetts
 Street Ry.)
 Equipment inspection on kilowatt-hour basis
 (1941), *575; *789
 Metal tokens introduced, 831
 New fare schedule, 161; 488; 831
 Reorganization plan, 538
 Sale of property, 839
 Service-at-cost plan, Trustees named, 210
 Strike, 1280
—Boston Elevated Ry.:
 Capital expenditures projected, 367
 Financial problem, 477
 Financial reports, 491; 606; 842; 1067;
 1289
 Metal tokens satisfactory, 543
 Service improvements, 924
 Zone fares, Report by A. S. Richey, *134
—Boston & Worcester Street Ry.:
 Annual report, 203

Brakes and compressors:
—Air compressor lubrication (Conrad), 424
—Compressor maintenance, 569
—New type of compressor (Ingersoll-Rand),
 *790

Brazil:
—Pernambuco Tr. & Pr. Co.:
 Emergency gear construction (Butler), 331

Bridges:
—Maintenance discussed (Cram), *952

Bridgeport, Conn.:
—Connecticut Company:
 Demand for segregation of local lines, 543
 Safety cars, Experiences, *316; 428

British Columbia Elec. Ry. (see Vancouver,
 Can.)

Brooklyn, N. Y.:
—Brooklyn Rapid Transit Co.:
 Butterfly turnbuckle for sprocket chain re-
 pairs, *577
 Choice of rail bonds (McKelway), *591
 Compromise joints, *1108
 Copper-clad span wire (McKelway), 332
 Electric railway bridge maintenance (Cram),
 *952
 Lighter cars needed (Cram), 1182, *1182
 Machine for testing car jacks (Pike), *587
 One-man car service commenced, 418
 Pressure oil can, *656
 Prevention of rail-bond thefts (McKelway),
 *375
 Rack for air-brake hose, *960
 Receivership, 68; 156; 202; 251; 292

Brooklyn, N. Y. (Continued)
—Brooklyn Rapid Transit Co. (Continued)
 Rust prevention (O'Brien), 243
 Sewer construction, *1279
 Soldering tongs, *768
 Standardizing armature end-lead, *1231
 Strike, 749; 797
 Substation operators' training, *919
 Third-rail bonding (McKelway), *1154
 Tie renewal discussed (Cram), *308
 Timber preservation discussed (Cram), 597
 Trolley station, *878
 Welding worn contact shoes, *651

Buffalo, Lockport & Rochester Ry. (see Roches-
 ter, N. Y.)

Buffalo, N. Y.:
—International Railway:
 Buffalo-Niagara high-speed line successful,
 *1103
 Commission's report on traffic conditions,
 254
 Franchise negotiations, 246; 378; 426; 613;
 796; 882; 1020; 1063; 1113
 Snow sweepers made from open cars
 (Hulme), *148

Bureau of Statistics and Information, Report, 611

Butte, Mont.:
—Butte Electric Ry.:
 Results with automatic substation (Nash),
 *569

C

Cables:
—Connector, without solder (Dossier), *744
—Stresses on cable wires (Sahm), *786
—Stress on stranded conductor cores (Harte),
 880

Canada:
—Electric lines near breaking point (Freder-
 icks), 91
—British Columbia passes strong public utility
 act, 876
Car ailments, 143; 329; 593; 783; *965; 1229

Car design:
—Recent developments (Johnson), 229
—Seatless design tried in Japan, 1111
—Seats should be reduced to increase capacity
 (Wing), 1110
—Seatless type advocated (Observer), 1182

Cars:
—Concrete gondola car, *698
—Front-entrance, center-exit type for Philadel-
 phia, *89
—H. Ford's gas-driven street car, *738; 767;
 794, 797; 829; 851; 869; 1110
—Light open type in St. Louis, *879
—New York Central R. R., 1134
—Self-propelled for branch lines (Protzelner),
 *1149

Casual riders' fares on commutation principle,
 693; 747; 793

Central Electric Railway Assn.:
—Accountants' Assn. meeting, 372
—Cleveland meeting, 421; Papers (Sullivan),
 413; Comment, 994; (Kelsay), *455; (Cole),
 460; Discussion, 463
—Committee appointments, 736
—Report of Traffic Assn., 138

Census for electric railways, 423; 522; 877;
 877; Comment, 813; 1037; 1081

Circuit breakers (see Substations and equip-
 ment)

Chamber of Commerce of the United States:
—Committee on public utilities, 792
—Electric railways discussed, 870; 915; 1057;
 1093; Comment, 851
—Hearing at Washington, 1222

Charles City, Ia.:
—Charles City Western Ry.:
 Women operators for one-man cars, *178

Chattanooga, Tenn.:
—Chattanooga Ry. & Lt. Co.:
 Receivership, 886

Chicago, Milwaukee & St. Paul Ry.:
—Data on regeneration, *1218

Chicago, Ill.:
—Electrification again considered, 108
—Fare case decision, 891; Comment, 851
—Chicago Elevated Rys.:
 Air-brake testing room, *374
 Annual report, 155; 710
 Banquet to returned service men, *529
 Boring machine home made, *745
 Pare increase upheld, 208; Comment, 215
 Hydraulic jack made from axle, *365
 Mechanical developments (Johnson), 229
—Chicago Surface Lines:
 Annual report, 930
 Track standards successful, *865

Chicago, North Shore & Milwaukee R. (see
 Highwood, Ill.)

Cleaning of cars:
—Washing cars at East St. Louis, *878

*Illustrated.

- Cleveland, Ohio:
 —Cleveland Railway:
 Annual report, 755
 Battery charging practice, *366
 Decision not to employ women conductors, 749
 Franchise negotiations, 426; 614; 975
 Portable coil conveyor, *332
 —Lake Shore Electric Ry.:
 New wheel press design, 196
 Cincinnati, Ohio:
 —Cincinnati Traction Co.:
 Annual report, 431
 Columbus, Ohio:
 —Columbus Ry., Pr. & Lt. Co.:
 Fare-increase problem, 203; 248; 434; 844;
 Comment, 853
 Receivership hearing, 203
 Reorganization, 158
 Supreme court decision against abandonment
 of franchise, 828
 Commission to investigate electric railways of
 United States (see Federal Commission
 for Electric Railways)
 Commutation principle for fares (see Casual
 riders fares)
 Compensation for engineers, 960
 Congestion relief (see Terminal roads and
 terminals)
 Connecticut:
 —Proposed aid by State to electric railways,
 707; 882
 Connecticut Company (see Bridgeport, Conn.,
 and New Haven, Conn.)
 Cooperstown, N. Y.:
 —Southern New York Pr. & Ry. Corp.:
 Fare of 4 cents per mile allowed, 116
 Controllers:
 —Increasing life of contact segments and fingers
 [Beers], *697
 —Storage battery, Edison type, Maintenance
 [Cottschalk], 315
 —Treatment of loose drum controller cylinders
 [Beers], *319
 Converters (see Substations and equipment)
 Conveyor of portable type (Portable Machinery
 Co.), 700
 Croymen Corp. Tramways (see Great Britain)
 Cumberland County Lt. & Pr. Co. (see Port-
 land, Me.)
 Current collection:
 —Pantograph shoes of Denver & Interurban
 Ry., *1212
- D**
- Dallas, Tex.:
 —Dallas Railway:
 Annual report, 381
 Trolley eliminated by ordinance, 385
 Skip stops save time, 181
 Unsatisfactory situation under service-at-
 cost franchise, 981
 Denver, Col.:
 —Denver & Interurban R. R.:
 Pantograph shoes, *1212
 (See also Fort Collins, Col.)
 —Denver Tramway:
 Bonus system to save coal [Casey and
 Weber], *267
 Fare controversy, 1183
 Mechanical pusher for flat-car unloading
 [Whitlock], *924
 Modern appliances in track construction
 [Whitlock], *993
 Return to 6-cent fare, 206
 Safety carrier for motors, *192
 Shop routing system, *328
 Detroit, Mich.:
 —City Council acts, 1285
 —Municipal ownership project, 287; 378; 427;
 477; 533; 614; 659; 706; 739; 885; Com-
 ment, 496
 —Detroit United Railway:
 Annual report, 1118
 Coal handling plant, *282
 Economies of skip stops, 185
 Improvements outlined, 977
 Interurban section-men's cars, *890
 New shop equipment, 183
 Pony truck for broken-axle repairs, *785
 Railway's problem, 797
 Skip stops found safe [Burdick], *97
 Stone crushing plant, *726
 Strike, 1184
 Supreme court decision on franchise, 149
 Wage and fare problem, 1114
 Wage settlement, 1237; Comment, 1203
 Zone fare system on suburban line, *1107
- Des Moines, Ia.:
 —Decision covering service determined by fare,
 843; Comment, 385; Service reduction at-
 tempted, 488; 544; 623; 669
- Diesel engines at Lincoln, Neb. [Shaw], *902;
 Comment, 900.
 Differential gears, Maintenance costs, Hudders-
 field (England) Tramways, *133
 Door operating machines, Maintenance [Oakley],
 588
 Dublin United Tramways (see Great Britain)
- E**
- East St. Louis, Ill.:
 —East St. Louis & Suburban Ry.:
 Car washing practice, *878
 —East St. Louis Ry.:
 Six-cent fare decision appealed, 935
 Eastern Massachusetts Street Ry. (see Boston);
 Bay State Street Ry. (see Great
 Britain)
 Edinburg & District Tramways (see Great
 Britain)
 Electric railways:
 —Agents of public [Clark], 1011
 —Effect of war [Wetherwax], 1177
 —Elements of cost of service, 1220
 —Fare-increase problem discussed by civic lead-
 ers, 361; 408; 639; Comment, 724; 747
 —Financial returns, 69; 251; 430; 664; 840
 —Governors' messages extracted, 101
 —Prospects for 1919 [Gadsden], 4; [Renshaw],
 Comment, 3
 —Statistics for 1918, 49; 52; 54; 55; 59; 150
 —(See also Census of electric railways;
 Chamber of Commerce of the United States;
 Federal Commission for Electric Railways)
 Electrolysis:
 —Pipe drainage discussed, 701
 —Resistance of electric railway roadbeds [Shep-
 ard], *122
 —Return-circuit studies on Milwaukee, *770
 Employees:
 —Board of Conciliation in Iowa described [Ray-
 mond], 1275
 —Contract with Union at Girardville, Pa., un-
 enforceable, 1064
 —Draft status of electric railway employees, 529
 —Promotion of co-operation, Comment, 725
 —Self-insurance for workmen's compensation
 [Browne], 1176
 —Substation operators' training in Brooklyn,
 *919
 —Suggestions for improvements made by Con-
 necticut Co.'s men, 908
 —Training platform men [Clarke], 1056
 —Value of appreciation of employees' efforts
 [Spring], 475
 —Wage standardization, Comment, 127
 —Women on cars:
 Decision against women in Detroit, 197
 Eliminated by New York welfare legislation,
 1019; Comment, 991
 Women operators for one-man cars at Charles
 City, Ia., *178
 Successful service at Vancouver, 360
 (See also Labor and War Labor Board)
 Energy consumption:
 —Curve resistance, Comment, 126
 —Energy saved by use of rails, 1079
 —Importance of [Castiglioni], 1181
- F**
- Fare collection:
 —Metal tokens appreciated in Boston, 543
 —Practice in Great Britain with zone system
 (see Zone fare system)
 —Public Service Ry. zone fare plan, *523;
 598; 644; 1192; Comment, 497; 630
 —Register for zone fares [Ohmer], *695
 Fare increases:
 —Lists, supplementary, of cities granting in-
 creases, 116; 715; 1193
 Fares:
 —Aid by taxation recommended by Massachu-
 setts commission, 377; 419
 —Basis of stand-by and operating charges, Pub-
 lic Service Ry., *523; 598; 644; Comment,
 497; 630
 —Ethical aspects of the situation [Sullivan],
 413; Comment, 394
 —Effect of higher fares on revenue, 113
 —Effect of 7-cent fare in New Jersey, 380
 —Four cents per mile allowed New York rail-
 way, 116
 —Increases discussed by W. H. Taft, 1169;
 1225; 1248
 —Increases not producing results in Massachu-
 setts, 186
 —Increases essential [Conway], 1157
 —Opinions of civic leaders as to fare-increase
 problem, 361; 408; 639; Comment, 724, 747
 —Predicting effects of increases [Schurt], *741
 —Proposed commutation plan for placing load
 on casual rider, 693; 747; 793
 —Rate of 6-cent fare in St. Louis, 293
 —Results of increase in Pittsburgh, 1284
- Fares (Continued)
 —Status of fare increases in country, 297
 —Sliding scale with combined utility services,
 *684
 —Ten cents allowed in Pittsburgh, 1293
 Federal Commission for Electric Railways:
 —Hearing in New York, 1225
 —How Commission may help [Shoup], 1277
 —Organization, 1015; 1107; 1161; Comment,
 1035; 1201
 —Personnel of Committee of One Hundred,
 1224; meeting of, 1278
 Feeders:
 —Double insulator construction, *920
 —(See also Cables)
 Fender of light weight for one-man car [Maize],
 *596
 Ford (Henry) gasoline-driven surface car, *738;
 767; 794; 797; 829; 851; 869; 1110
 Fort Collins, Col.:
 —Denver & Interurban R. R.:
 Municipal ownership project, 204; 248
 France:
 —Rehabilitation of war-zone tramways [Pierce],
 *1101
 Franchises:
 —Indeterminate [Erikson], 1266
 —Reproduction cost fair basis for valuation
 [Crowell], 500
 —Service-at-cost plan:
 Advantages [Clark], 1219
 Characteristics discussed [Nash], 15
 Maintenance and depreciation allowances
 [Drum], 513
 Opposed by Cleveland mayor, 426
 Proposed for Youngstown, O., 99
 Rate of return [Gruhl], 502
 Valuation, Compromises necessary, Com-
 ment, 551
 Freight and express:
 —Development of feeders on Sacramento North-
 ern R., 1045
 —Freight haulage an economic duty [Cole], *39
 —Hints for the freight operator [Cole], *397
 —Merchandising of transportation [Cole], 460
 —Parcel cartage inaugurated in Glasgow, 360
 —Requirements and costs of handling freight
 [Cole], *219
 —Results of governmental control of express
 [Henry], *927
- G**
- Galveston, Tex.:
 —Galveston Electric Co.:
 Fare reduction protested, 1192
 Gary, Ill.:
 —Gary Street Ry.:
 One-man cars successful, *967
 Gasoline a prohibitively costly fuel [Kingsley],
 *829
 Gasoline motor cars (see Motor cars, gasoline)
 Gears and pinions:
 —Long life of gears at Glasgow, 424
 —Making emergency gears [Butler], *331
 —Pinion hearing practice at St. Louis, *787
 Gears for turbine speed reduction (Terry), *789
 Georgia Ry. & Pr. Co. (see Atlanta, Ga.)
 Girardville, Pa.:
 —Schuylkill Railway:
 Union contract unenforceable, 1064
 Glasgow Corp. Tramways (see Great Britain).
 Governors' and Mayors' Conference recognizes
 electric railway needs, 480
 Grafton & Upton R. R. (see Milford, Mass.)
 Grand Rapids, Mich.:
 —United Lt. & Ry. Co.:
 Plan to place load on casual riders, 693;
 747; 793
 Great Britain:
 —Aberdeen Corporation Tramways:
 Car maintenance data, 604
 Zone fare system [Jackson], *814
 —Belfast City Tramways:
 Maintenance of car bodies [Williamson],
 *1058
 Wheel and axle practice [Vernon], *961;
 971
 Zone fare system [Jackson], 909; *1005
 —Croymen Corp. Tramways:
 Shop equipment, *1281
 —Dublin United Tramways:
 Annual report, 482
 Zone fare system [Jackson], *1038; 1087
 —Edinburg & District Tramways:
 Zone fare practice [Jackson], *854
 —Huddersfield Tramways:
 Differential gear maintenance, *133
 —Glasgow Corporation Tramways:
 Long lived gears, 424
 Parcel cartage inaugurated, 360
 Shop practices of Glasgow Corporation
 Tramways, 286

*Illustrated.

READ THE INSTRUCTIONS AT THE BEGINNING OF THE INDEX

Great Britain (Continued)
 —Glasgow Corporation Tramways (Continued)
 Zone fare system investigated [Jackson], *355; *467; *632
 —Heavy electric traction in [Dawson], *1160
 —Letters from London correspondent, 64; 245; 425; 705; 881; 1112
 —London County Council Tramways:
 Suggestions for mechanical ticket issue [Thomas], 1109
 —London Underground Electric Rys.:
 Annual report, 754
 Maps for patrons' use, *1104
 Publicity on routes for travelers' conduct, *735
 Strike, 478
 —London & Southwestern Ry.:
 Traffic increase from electrification, 923
 —One-man control for public utilities, 750
 —Reading Corporation Tramways:
 Welding track frames [Caldier], *586
 Zone fare system [Jackson], *1258
 —Track without ties, *743
 —West Ham Corporation Tramways:
 Zone fare system [Jackson], *1163
 Great Northern R. R.:
 —Operating data for 1918 for Cascade Tunnel [Marshall], *1127

H

Haltia, Can. Tr. & Pr. Co.:
 —Finishing welded compressor cylinders [Pride], *788
 Harrisburg, Pa.:
 —Harrisburg Railways:
 Bond and joint maintenance [Moist], *573
 Hastings (N. Y.) walks free of charge, 938
 Heavy electric traction:
 —Constant speed motors, comment, 1201
 —Data for 1918 for Cascade Tunnel [Marshall], *1217
 —Discussion by A. I. E. E., 605
 —Discussed at Western Railway Club [Potter and Dodd], 825
 —Future of [Dawson], 1160
 —Heating passenger trains, 1268
 High-voltage d.c. railways:
 —Power regeneration on C. M. & St. P. Ry., *1218
 Highwood, Ill.:
 —Chicago North Shore & Milwaukee R. R.:
 Annual report, 887
 Automatic substation operation [Jones], *84
 Co-operation in safety work [Scott], 359
 Holyoke, Mass.:
 —Holyoke Street Ry.:
 Armature handling [Pelissier], *95
 Houston, Tex.:
 —Houston Electric Co.:
 Fare relief case, 254, 716
 Huddersfield Tramways (see Great Britain)

I

Illinois:
 —Public utilities publicity program, 884
 Illinois Electric Railway Ass'n:
 —Annual meeting, 179, 220
 —Officers and committees, 612
 Illinois Traction System (see Peoria, Ill.)
 Indiana:
 —Fare increases to interurbans, 117
 —Interline express rates requested by interurbans, 1028
 Indianapolis, Ind.:
 —Merger of Street Railway and Traction & Terminal Co., 1119; 1243
 —Indianapolis & Cincinnati Tr. Co.:
 Results of government-operated express [Henry], *927
 Tube puller for stationary boilers, *194
 —Indianapolis Street Ry.:
 Plan for reorganization, 1068
 —Indianapolis Tr. & Term. Co.:
 Annual report, 888
 Earnings increased, 844
 Emergency special work [McMath], *145
 Industrial department for public utilities [Whelan], 655
 Inspection of cars:
 —Inspection on kilowatt-hour basis:
 Bay State Street Ry. [Bolt], 575
 Equipment for (Economy Electric Devices), *789
 —Temporary facilities for New York subways [Glaser], *184
 Interborough Rapid Transit Co. (see New York City)
 International Railway Co. (see Buffalo, N. Y.)

International Tramway & Light Railway Assn.:
 —Meetings resumed after war, 1055; Comment, 1936
 Iowa Electric Railway Assn.:
 —Meeting at Colfax, 1216; 1271
 Iowa State Board of Conciliation described [Raymond], 1275

K

Kansas City, Mo.:
 —Kansas City Railways:
 Emergency special work made up with arc welder, 1060
 Recent substation design [Grauten], *326
 Safety cars satisfactory [Kealy], 1170
 Strikes, 109; 288; 470; 535; 659
 Kentucky Traction & Terminal Co. (see Lexington, Ky.)

L

Labor:
 —Cost of labor turnover, 279
 —Supply and demand in various cities, 65
 —Women conductors, Comment, 2
 —Women on steam railroads, 102
 —(See also Employes, Women on cars)
 Lake Shore Electric Ry. (see Cleveland, O.)
 Lehigh Valley Transit Co. (see Allentown, Pa.)
 Legal:
 —Franchise is binding contract, Supreme court decision in Columbus (Ohio) case, 828; Comment, 853
 —New Jersey decision approving fare increases to prevent deficits, 486
 —Ruling in Des Moines that service may be limited to that warranted by fare, 343; Comment, 395; Service reduction attempted, 488; 544; 623, 669
 —Supreme court decision on Detroit franchise, 149
 —Wisconsin decision on emergency rates, 759
 Lexington, Ky.:
 —Kentucky Traction & Terminal Co.:
 Annual report, 155
 Lincoln, Neb.:
 —Lincoln Traction Co.:
 Diesel engine [Shaw], *902
 Locomotives:
 —Design discussed [Potter and Dodd], 826
 —Designs for moderate capacity [Cole], *1152
 —Performance characteristics [Ebsbeck], 1139; Comment, 1131
 —Single-phase type for Swiss Federal Rys., *1141
 London, Can.:
 —London Street Ry.:
 Annual report, 711
 London, England (see Great Britain)
 Los Angeles, Cal.:
 —Pacific Electric Ry.:
 Eliminating ground-squirrel pest, *105
 Employes' "vacation hours," 1159
 Interurban stations and shelters [Elliot], *723
 Smoke-stack removed and reinstalled [Elliot], 580
 Tool list as aid in economical maintenance of way [Elliot], 271
 Louisville, Ky.:
 —Louisville Railway:
 Annual report, 484

M

Mahoning & Shenango Ry. & Lt. Co. (see Youngstown, O.)
 Mail:
 —Compensation for electric railway carriers, 1180; 1235 Comment, 947
 —(See also Postal zone law)
 Maps on cars for patrons' use, London Underground Ry., *1104; Paris Tramway, 1182
 Markets:
 —Automatic substations, 988
 —Bell cord, 390; 1128
 —Bridle situation, 720
 —Car seatings, 1128
 —Coal, 123
 —Construction reports, 548
 —Copper, 303; 1128
 —Copper wire, 123; 675
 —Copper goods, 492
 —Curtains, 1033
 —Electrical equipment, 166
 —Electrical supplies, 348
 —Export railway material, 440; 626
 —Fare registers, 390

Markets (Continued)
 —Fenders, 848
 —Fibre conductors, 1197
 —General sales situation, 1252
 —General supplies, Costs and quantities compared 1914 and 1918, 440
 —Hewn ties, 942
 —Insulating material, 1299
 —Journal box packing, 1298
 —Machine tools, 1293
 —Maintenance material, 492; 764
 —Paints, 674
 —Poles, 212
 —Price levels (see Prices)
 —Rail bonds, 260; 848; 1197
 —Review for 1918, 78
 —Track supplies, 102
 —Transformers, 548
 —Transformer materials, 1032
 —Craps, 123
 —Slack adjusters, 896
 —Special work, 808; 1032
 —Steel, 674, 942
 —Steel equipment, 720
 —Steel poles, 1128; 1197
 —Supplies, 626
 —Wire, 260, 1076
 —Wheels, 848; 1032
 Massachussets:
 —Public Service Commission:
 Report on effect of increased fares, 186
 Taxation to aid electric lines recommended, 377; 419
 —Railway legislation for public ownership discontinued, 895
 Master Car Builders' Assn. (see American Railway Assn.)
 Master Mechanics' Assn. (see American Railway Assn.)
 Memphis, Tenn.:
 —Memphis Street Ry.:
 Contact wire replacement, *189
 Merrill, Wis.:
 —Local line offered to city for \$1, 974
 Milford, Mass.:
 —Grafton & Upton R. R.:
 Trial of zone system, 344
 Milwaukee, Wis.:
 —Milwaukee Elec. Ry. & Lt. Co.:
 Annual report, 711
 Fare hearings, 803
 Return circuit studies [Shepard], 770
 Research bureau for operation, 373
 Strike, 247, 976
 Minneapolis, Minn.:
 —Twin City Rapid Transit Co.:
 Annual report, 1289
 Fare situation, 1120
 Hollow axles, 1232
 New franchise discussion, 336; 1069
 Valuation figures, 293
 Results with coasting records, 703
 Minnesota Northwestern Elec. Ry. (see Thief River Falls, Minn.)
 Mobile, Ala.:
 —Mobile Lt. & R. R. Co.:
 Plea for 6-cent fare withdrawn, 1247
 Montreal, Can.:
 —Montreal Tramways:
 Welding manganese special work [Scott], *1227
 Motor buses:
 —Long-haul service, Comment, 351
 Motor cars, gasoline-steam (Unit Railway Car), *1227
 Motor cars, gasoline:
 —Minnesota North Western Elec. Ry. [Protzeller], *1149
 Motors:
 —Armature coil winding practice, *578
 —Constant speed, Comment, 1201
 —Device for preventing rubbing of armature on poles, *971
 —Electrical vs. mechanical troubles [Dean], *657
 —Manufacturers' tests [Dean], *777
 —Standardizing armature end play, *1231
 —Welding cracked shells, *581

N

National Electrical Code, Correction, 1236
 National Electric Light Assn.:
 —Annual convention, 999; 1053
 Reconstitution chart, *1267
 Newark, N. J.:
 —Public Service Corp.:
 Annual report, 1023
 —Public Service Ry.:
 Annual report, 710
 Fare case hearings, 802; 844; 892; 936; 1078; 1122; 1192; 1292
 March finances, 886
 New financing plan, 250

*Illustrated.

- Newark, N. J. (Continued)
 —Public Service Ry. (Continued)
 Strike, 479; 533; 613
 Traffic improvement [Jackson], 1049
 Zone fare plan, *523; *598; 644; 1122; Comment, 497, 630
- New Brighton, N. Y.:
 —Richmond Lt. & R. Lops
 Maintenance of car lamps [Gottschalk], 282
 Maintenance of Edison-type batteries [Gottschalk], 315
- New Brunswick Power Co. (see St. Johns, Can.)
- New England Electric Freight Assn.:
 —Director meeting, 863
- New England Street Railway Club:
 —February meeting, 467
 —March meeting, 656
- New Hampshire:
 —Public Service Commission
 Report on fare situation, 199
- New Haven, Conn.:
 —Connecticut Company
 Educating public for safety-car operation, 914
 Employees suggest improvements, 908
 Extending life of poles [Harte], *554
 Increased revenue needed [Stors], 237
 Pole gyps [Harte], *321
 Pole top fittings [Harte], *1204
 Results from rail conservation [Dunham], *562
 Track reclamation by welding and grinding [Tippet], *773
 (See also Bridgeport, Conn.)
- New Jersey:
 —Decision on fare increases, 486
- New Orleans, La.:
 —New Orleans Ry. & Lt. Co.:
 Receivership, 157
- New York Central R. R.:
 —Motor cars, *1134
- New York City:
 —Closed vestibules for cars ordered, 545
 —Fare situation, *333; 340; 751; 1249
 —New subway line opened, *795
 —Public Service Commission reorganized, 928
 —Temporary inspection facilities for dual subway equipment [Glaser], *184
 —Interborough Consolidated Corp.:
 Receivership, 663; 800
 —Interborough Rapid Transit Co.:
 Eight-cent fare refused, 162
 Turbo-generator, 60,000 kw., [Finlay], *906
 —New York Railways:
 Receivership, 619
 Third Avenue Ry.:
 Annual report, 432
 (see also Brooklyn, N. Y.)
 —New York Electric Railway Assn.:
 Annual meeting, *1173
- New York State:
 —Public Service Commission:
 Annual report, 152; Comment, 496
 Hearing on jurisdiction over service, 487; 542
 Investigation of fare increases, 1292
 —Supreme court decision on Buffalo interurban fare case, 1027
- New York State Ry. (see Rochester, N. Y.; Syracuse, N. Y.)
- Norfolk & Western Ry.:
 —Notes on recent operation, 522
- Northern Ohio Tr. & Lt. Co. (see Akron, Ohio)
- Nova Scotia Tr. & Pr. Co. (see Halifax, Can.)
- O**
- Oakland, Cal.:
 —Oakland Antioch & Eastern Ry.:
 Reorganization plan, 981
 —San Francisco-Oakland Terminal Ry.:
 Annual report, 1244
- Omaha, Neb.:
 —Omaha & Council Bluffs St. Ry.:
 Fare case, 803
 Glass chipping and sand-blasting, *62
 Stone crusher operation, *279
- Oils, Dielectric strength testing device (Westinghouse), *325
- One-man cars:
 —Device for insuring proper position of trolley pole [Conley], *968
 —Discussion at New England Street Railway Club, 467
 —Discussed by Westinghouse representatives, 1179
 —Discussed by Iowa Electric Railway Assn., 1272
 —Effects of small size, Comment, 1202
 —Experiences in Bridgeport, Conn., *316; 428
 —Experience in Terre Haute, *1263; 1282
 —Field for, Comment, 1080
 —Inaugurated at Ogden, Utah, 1057
- One-man cars (Continued)
 —Live proposition [Kealy], 1170
 —Operating records and statistics from various cities [Anderson], 652
 —Operating results in Seattle, 466
 —Opposition by Amalgamated Association's president, 929; Comment, 946
 —Prepayment areas desirable, Comment, 1257
 —Proposed for interurban service [Hersherberger], 1270
 —Stop stops important, [Walker], 1282
 —Successful at Gary, Ind., *967
- Operating records and costs:
 —Car performance predetermined from test results [Squire], *1209
 —Data for 1918 for Cascade Tunnel [Marshall], *1217
 —Costs of handling freight [Cole], *219
 —Economics at San Diego, Cal., *273
 —Effect of increased fares on revenue, 113
 —Graphic records for interurban train schedules, *683
 —Traffic characteristic graphs [Dewhurst], *694
- Oshkosh, Wis.:
 —Public support to local traction line, 296
- Ottawa, Can.:
 —Ottawa Electric Ry.:
 Property offered to city, 298; 337
- Overhead contact system:
 —Copper-clad wire for spans [McKelvey], 332
 —Steel trolley wire at Los Angeles, 778
 —Tension device for stringing new trolley wire at Memphis, *189
 —Trolley hand design [Blous], *595
 —Trolley pole erection on C. M. & St. P. Ry., 1110
 —Trolley wire insulator (General Electric), *901
- P**
- Pacific Electric Ry. (see Los Angeles, Cal.)
- Paints and Painting:
 —Economics, Comment, 393
 —"Selling" value of car painting, Comment, 1203
- Pavement:
 —Bids discussed, 1271
- Pennsylvania:
 —Public Service Commission approves first 6-cent fare case, 207
- Peoria, Ill.:
 —Illinois Traction System:
 Graphic records for interurban schedules, *683
 Storage for scrap, *833
- Pernambuco Tr. & Pr. Co. (see Brazil)
- Philadelphia, Pa.:
 —Agreement for unified operation blocked, 199; 247
 —Philadelphia Rapid Transit Co.:
 Annual report, 339; 662
 Front-entrance, center-exit cars, *861
 Publicity for skipstop, *233
 Record for nine years, 484
 Tax decision for leased lines, 382
- Pittsburgh, Pa.:
 —Citizen users Amalgamated Assn. for strike
 consideration, 1183
 —Pittsburgh Railways:
 Annual report, 537
 Distribution of materials and supplies [Wynbluth], 473
 Fare hearing, 1284
 Segregation of clay lines possible, 1119
 Strike, 977; 1020; 1183
 Ten-cent fare, 1293
- Pittsfield, Mass.:
 —Berkshire Street Ry.:
 Consideration of service on abandoned line, 1122
 Plea for subsidy, 1071
- Poles:
 —Extending life of [Harte], *554
 —Fittings for [Harte], *1204
 —Practice in guying [Harte], *139; *321
- Portland, Me.:
 —Cumberland County Lt. & Pr. Co.:
 Fare readjustment, 206
 Zone tickets adopted, *728
- Portland, Ore.:
 —Portland Ry. Lt. & Pr. Co.:
 Fender for one-man car [Maize], *596
- Postal zone law
 —Effect on subscription costs, *1084
- Power distribution:
 —Cable construction discussed by N. E. L. A., 1018
 —(See also Cables)
- Power stations and equipment:
 —(See also Boilers)
 —Diesel engines at Lincoln [Shaw], *902; Comment, 900
 —Turbogenerators discussed by N. E. L. A., 999
 —Turbo-generator, 60,000 kw., for Interborough Rapid Transit Co. [Finlay], *906; Comment, 900
- Power station practice:
 —Boiler room practice discussed by N. E. L. A., 1001
 —Boiler system to save coal at Denver [Casey & Weber], *267
 —Possible economies [Kelsay], *455
 —Scraping boiler tubes, *791
 —Stoked under mud-drum at Cleveland, *972
- Price levels of future:
 —"Goods dollar" plan as applied to industry [Fisher], 1094
 —National Prosperity Campaign publicity, 832; 862; Comment, 852
- Price levels of present should apply to fares [Holden], 1095
- Price-stabilization by adoption of "goods-dollar," 779; Comment, 769
- Printing department, United Railways of St. Louis, 530
- Providence, R. I.:
 —Rhode Island Co.:
 Annual report, 203; 538
 Company's leases set aside, 1023
 Experimental long-haul fare reduction, 758
 Portable painter's table, *320
 Proposed reorganization, 662
 Receivership, 230; 292; 539; 1242
- Public Relations with:
 —Advice from Illinois Commission, 384; Comment, 394
 —Courtesy campaign in Springfield, Mass., *541
 —Electric railway situation discussed by civic leaders, 361; 408; 639
 —Salesmanship of transportation by employees, 1106; Comment, 1089
- Publicity:
 —London (Eng.) rules for travelers' conduct, *735
 —Maps for patrons of London Underground Ry., *1104
 —Price stabilization posters, *832
 —Springfield (Ill.) campaign for higher railway fares, *740
- Public service and regulative commissions:
 —British Columbia legislation, 876
- Public Service Ry. (see Newark, N. J.)
- Puget Sound Tr., Lt. & Pr. Co. (see Seattle, Wash.)
- Punch, hand operated (Koch), *923
- R**
- Rails:
 —Discussion of A. E. R. A. standard sections, *724
 —Effect of vibrations on failures [Pegram], 1111
 —Results from rail-conservation [Dunham], *562
- Rail joints and bonds:
 —Choice of rail bonds [McKelvey], *591
 —Electrically-welded rail joints at St. Louis, *182
 —Hardening joints on Southern Pacific R. R., 1148
 —Relation between bond and joint maintenance [Moist], *573
 —Track prevention [McKelvey], *375
 —Track reclamation by welding and grinding [Tippet], *773
 —Welding special-alloy steel rails [Hulbert], *973
- Rail corrugation, Differential gear as remedy at Huddersfield, England, *133
- Reading Corp. Tramways (see Great Britain)
- Regulations for public utilities [Jackson], 230
- Repair shop equipment:
 —Auxiliary hoist for crane [Payne], *744
 —Butterfly turnbuckle, *577
 —Portable fuse tester, *190
 —Portable painter's table, *320
 —Saw bench [Wallace], *730
 —Spreader for crane hooks, *879
 —Tester for car jacks [Pike], *587
 —Trolley-tempering electric furnace [Westinghouse], 790
- Repair shop practice:
 —Armature coil winding, *578
 —Battery charging practice at Cleveland, *366
 —Compressor maintenance, *569
 —Controller shaft renewals [Beers], *61
 —Cooling tempering oil, *1232
 —Finishing welded compressor cylinders [Pride], *788
 —Flashovers reduced by low-voltage circuit breaker, 144
 —Gage for sorting wood screws, 285
 —Glass chipping and sand blasting, *62
 —Ice on contact contacts remedied, 143
 —Inspection on a kv.-hr. basis, *789
 —Maintenance of car lamps [Gottschalk], 282
 —Maintenance of door machines [Oakley], 518

*Illustrated.

READ THE INSTRUCTIONS AT THE BEGINNING OF THE INDEX

- Repair shop practice (Continued)
- Maintenance of Edison storage batteries [Gottschalk], 315
 - Mysterious car ailments, 143; 329; 593; 783; *965; 1229
 - Results from dipping and baking motor coils [Dean], 190
 - Rust prevention [O'Brien], 243
 - Shop routing system in Denver, *328
 - Using field coils for polarity, *1235
 - Waste cleaning and saturating at Anderson, Ind., *776
 - Welding motor shells, *581
- Repair shops:
- Freight repair track facilities, Illinois Trac. System, *1109
- Rerouting for traffic congestion (see Terminal stations and terminals)
- Resistance of electric railway road beds [Shepard], *172
- Resuscitation chart, *1267
- Rhode Island Co. (see Providence, R. I.)
- Richmond Lt. & R. R. Co. (see New Brighton, N. Y.)
- Richmond, Va.:
- Virginia Ry. & Pr. Co.:
 - Annual report, 483
- Riding habit in large cities [Halmos], 927
- Rochester, N. Y.:
- New York State Rys.:
 - Device for preventing rubbing of armature on poles, 971
 - Brafo, Lockport & Rochester, Ry.:
 - Reorganization, 380
- Roslyn, L. I.:
- New York & North Shoro Tr. Co.:
 - Voluntary payment of increased fare by patrons, 384
- Rush-hour traffic:
- Comment, 945
- S**
- Sacramento, Cal.:
- Sacramento Northern R. R.:
 - Freight traffic, *1045
- Safety cars (see One-man cars)
- Safety-first movement:
- Cooperation on North Shore Line [Scott], 359
 - Requirements on electric railways [Adams], 231
- Saginaw, Mich.:
- Saginaw-Bay City Ry.:
 - Twelve-day suspension, 759
- San Diego, Cal.:
- San Diego Electric Ry.:
 - Freight theory discussed [Clayton], 195
 - Petition for relief, *273, 1086
 - Proposed zone system, 983; 1071
 - War Labor Board wage hearing, 377
- San Francisco, Cal.:
- Encroachment case, 750
 - New terminal loops, *103
 - Municipal Railway:
 - Annual report, 932
 - Income and statistical data for 1916 and 1917, 294
 - Maintenance practice [Eckart], *559
 - Review of building problems, 1113
 - United Railroads:
 - Annual report, 537
 - Injunction against Municipal Ry. denied, 884
 - New prepayment loop, *454; Correction, 324
 - Readjustment plan, 1290
 - Unloader for construction car [Chamberlin], *324
 - White bricks for indicating safety zones, *742
- San Francisco-Oakland Terminal Rys. (see Oakland, Cal.)
- Seranton, Pa.:
- Seranton Railway:
 - Wage award, 1115
 - Seranton & Binghamton, R. R.:
 - Reorganization plan, 712
- Schedules (see Train operating practice)
- Schenectady, N. Y.:
- Schenectady Railway:
 - Beautifying substation grounds, *782
- Schuylkill Railway (see Girardville, Pa.)
- Seattle, Wash.:
- Purchase of local railway by city, 110; 379; 480; 534; 708
 - Municipal Railway:
 - Financial statement for April, 1187
 - Operating notes, 1021; Comment, 991
 - Wage extensions, 1283
 - Wage demands, 1286
 - Wage scale, 922
 - Puget Sound Tr. Lt. & Pr. Co.:
 - Safety car operation satisfactory, *466
 - Strike, 335; 379; Comment, 351
- Signals:
- Testing board [Nachod], *572
- South Africa:
- Electric railway practice in various cities [Edwards], *683
- Southern New York Pr. & Ry. Corp. (see Cooperstown, N. Y.)
- Southern Pacific R. R.:
- Hardening rail joints, 1148
 - How Federal Electric Railway Commission may help [Shoup], 1278
 - Performance characteristics of electric locomotives [Babcock], 1139
- Southwestern Electrical & Gas Assn.:
- Annual convention, 1013
- Special work:
- Estimating life of curved special work [Bernard], 1018
 - Welding manganese [Scott], *1227
 - Made up with arc-welder for emergency, *1060
- Spokane, Wash.:
- Fare conference, 668; 761; 803
 - Merger planned for local lines, 839
- Springfield, Ill.:
- Springfield Consolidated Ry.:
 - Publicity on fare situation, *740
- Springfield, Mass.:
- Springfield Street Ry.:
 - Courtesy campaign, *541
- Springfield, Mo.:
- Springfield Traction Co.:
 - Device for insuring proper trolley pole position [Copley], *968
- St. Johns, Can.:
- Shifting scale of return for combined utilities, *684
- St. Louis, Mo.:
- United Railroads:
 - Annual report, 618
 - Electrically welded rail joints, *182
 - Open cars, *879
 - Printing department, *530
 - Rivon heating practice, *787
 - Receivership, 339; 432; 799; 1187
 - Referendum theft case, 1284
 - Risers increase life of frogs [Hawkins], *1278
 - Tax agreement, 151
- Standardization must be logical, 1132
- Standards (see also American Engineering Standards Assn.)
- Steam railroad statistics for 1918, 1051
- Stopping of cars:
- Skip stop:
 - Accidents reduced in Toledo [Swarz], 690; Comment, 679
 - Economics in Detroit, 185
 - Economics of [Beeler], 1097
 - Experience in Dallas, Tex., 181
 - Influence on accidents, 233; Comment, 215
 - Power saving in St. Louis, 572
 - Safety shown by Detroit records [Burdick], *97
 - Signs important, Comment, 81, 82
 - Skip stop as a fuel saver [Layng], *34
 - Stone-crushing plant at Detroit, *726
- Store rooms:
- Practice in Pittsburgh [Yungebluth], 473
- Strike damages demanded by Pittsburgh citizen from Amalgamated Assn., 1183
- Substations and equipment:
- Circuit breaker for large currents [Automatic Recycling Circuit Breaker Co.], 1060
 - Outdoor substations discussed [Alsaiker], 731
 - Recent design in Kansas City [Grauten], 326
- Substations, automatic:
- Control for motor-started converters [Wensler], *85; Comment, 947
 - Discussion by N. E. L. A., 1004
 - List of installations, 54
 - Operation on North Shore line [Jones], *84; Comment, 83
 - Results at Butte [Nash], *565
 - Simplified wiring diagram, *104
 - Sources of economy [Lloyd], 922
- Switzerland:
- Swiss Federal Rys.:
 - Single-phase locomotives, *1141
- Syracuse, N. Y.:
- New York State Rys.:
 - Home-made sand car, *376
- Terre Haute, Ind.:
- Terre Haute, Indianapolis & Eastern Tr. Co.:
 - Experience with one-man cars, *1263
 - Safety cars and skip stops [Walker], 1283
- Tests of equipment:
- Car performance, predetermined from test results [Squier], 1209
 - Motor tests by manufacturers [Dean], *777
 - Service tests for car equipment [Squier], *128
- Thief River Falls, Minn.:
- Minnesota Northwestern Elec. Ry.:
 - Branch line operation with self-propelled cars [Protzelle], *1149
- Third Avenue Ry. (see New York City)
- Third-rail contact system:
- Bonding for third rails [McKelway], *1154
 - Leading types discussed, *1143
 - Zone ticket system for Portland, Me., *728
- Ties:
- Economic methods of handling [Crane], *308
 - Method of stacking, 283
 - New concrete tie, *100
 - Treatment by zinc-chloride vs. creosote, 283
 - Timber preservation to reduce maintenance cost [Crane], 597
- Toledo, Ohio:
- Toledo Rys. & Lt. Co.:
 - Skip stop reduces accidents in Toledo [Swarz], *690
- Track as an energy saver, 1079
- Track construction:
- Chicago standards of 1907-9 successful, *865
 - Cinder ballast recommended [Mitchell], 106
 - Compromise joints in Brooklyn, *1108
 - Concrete ballast, *233; Comment, 217
 - Electrically welded rail joints at St. Louis, 182
 - Electrical resistance of electric railway road beds [Shepard], *172
 - Emergency special work at Indianapolis [McMath], *145
 - Modern appliances [Whitlock], *995
 - Risers increase life of frogs [Hawkins], *1280
 - Stone-crushing plant at Detroit, *726
 - Tie-less track in Great Britain, *743
 - (See also Special work)
- Track maintenance:
- Accurate cost data needed ["Way Engineer"], 972
 - Rail surface wear indicator (Metal & Thermit Corp.), *592
 - Reclamation by welding and grinding [Tippett], *773
 - Stone crushing plant at Detroit, *726
 - The renewal economies [Crane], 308
 - Welding manganese special work [Scott], *1227
- Track maintenance (see also Rails)
- Tractor made from rebuilt automobile, *61
- Traffic improvement [Jackson], 1049
- Train operating practice:
- Lay-over time important, Comment, 1133
- Transmission lines:
- Chain fastenings for linemen's tools, *228
 - Lightning arrester of impulse-gap type, *283
 - Pole guys, *321
 - Pole top fittings [Hartie], *1204
 - Power lines as common carriers, 334
 - Practice in guying line poles [Hartie], *139
 - Stresses in cable wires [Sahn], *786
 - (See also Poles)
- Treated piles in salt water, 1233
- Tri-City Railway (see Davenport, Ia.)
- Trolley wire (see Overhead contact system)
- Trucks:
- Welding broken frames [Calder], *586
- Twin City Rapid Transit Co. (see Minneapolis, Minn.)
- U**
- Union Traction Co. (see Anderson, Ind.)
- United Traction Co. (see Albany, N. Y.)
- United Lt. & Rys. Co. (see Grand Rapids, Mich.)
- United Railroads (see St. Louis, Mo.)
- United Railways (see San Francisco, Cal.)
- V**
- Vancouver, Can.:
- British Columbia Elec. Ry.:
 - Houses for employees, 1063
 - Relationship between public, employees and investors, 795
 - Strike, 139
 - Women replace motormen successfully, 360
- Ventilator flue top for car roofs [Fischer], *923
- Virginia Ry. & Pr. Co. (see Richmond, Va.)
- T**
- Terminal stations and terminals:
- Akron passenger terminal, *681
 - Congestion relief at Baltimore [Palmer], 1082
 - Prepayment facilities in San Francisco, *454; Correction, *732
 - Three-track loop for San Francisco, *103
 - Youngstown (Ohio) loop problem, *969; [Yeracene], *1062
- U**
- Illustrated.
- READ THE INSTRUCTIONS AT THE BEGINNING OF THE INDEX

W

Wages:—
—Six-day week, Comment, 725
—See also War Labor Board

Waiting stations:
—Interurban shelters on Pacific Electric [Elliott], 733

War cripples on French electric railways [Pahin], 90

War Labor Board:
—Basis for decisions explained, 615 [Taft] 1169; 1255; 1248
—Jurisdiction questioned, 353
—Public reluctance to aid railways deplored [Ogburn], 692; Comment, 677
—Right to collective bargaining upheld, 535

War industry transportation:
—Governmental activities [Wells], 7; [Taylor], 13

Washington, D. C.:
—Fair situation, 758
—Joint transfer points recommended, 73; 160
—Two-cent transfers allowed, 1123; Comment, 1132
—Washington Ry. & Elec. Co.:
—Labor case, 289; 660
—W. F. Ham testifies before civic bodies, 883

Welding, special methods:
—American Welding Society formed, 531
—Arc-welding equipment accessories, *93
—Arc-welding metallurgy, 241
—Arc-welding, new developments [Kenyon], 63
—Arc-welding practice, *191
—Characteristics of arc welds [Eascholz], *280
—Discussion by American Ry. Assn., *1213

Welding, special methods (Continued)
—General discussion by engineering societies, 370
—Motor-shell welding, 581
—Selection of electrodes and holders for arc welding, *146

Western Railway Club:
—Electrical night, 825

West Ham Corp. Tramways (see Great Britain)

Westinghouse Electric & Mfg. Co.:
—Annual report, 1076

Wharton, Ill.:
—Aurora, Elgin & Chicago, R. R.:
—Safety work [Adams], 231

Wheeling, W. Va.:
—Wheeling Traction Co.,
—Fair readjustment, 843.

Wheels:
—Practice with steel tires at Belfast [Vernon], *961; 971

Winnipeg, Can.:
—Winnipeg Electric Ry.:
—Annual report, 380
—Strike, 1238

Winona, Minn.:
—Wisconsin Ry. Lt. & Pr. Co.:
—Emergency fare case decision, 759

Wisconsin Electrical Assn.:
—Milwaukee meeting, 652; 687; Papers [Allen], 688; [St. John], 689

Wisconsin Ry. Lt. & Pr. Co. (see Winona, Minn.)

Women employees. see Employees

Worcester, Mass.:
—Worcester Consolidated St. Ry.:
—Seven-cent fare allowed, 892

Work and wrecking cars:
—Snow sweepers made from open cars at Buffalo [Hume], *148

Yonkers, N. Y.:
—Yonkers Railroad:
—Fair controversy, 1072

York, Pa.:
—York Railways:
—Annual report, 754

Youngstown, Ohio:
—Congestion problem and its solution, *969
—Service-at-cost franchise adopted, 99
—Mahoning & Shenango Ry. & Lt. Co.:
—Ethical aspects of fare situation [Sullivan], *413; Comment, 394
—Portable dispatchers' office, 792
—Relief of local congestion [Yerance], 1062; Correction, *1110

Zone fare system:
—Fair register for zone system [Ohmer], *695
—Mechanical ticket issue for differential fare scheme [Thomas], 1109
—Portland, Me. ticket plan, *728
—Possibilities of, Comment, 217
—Public Service Ry. plan, *523; *598; 664; Comment, 497; 630
—Practice in British cities [Jackson], *355; *446; *632; *814; *854; 875; *909; 921; *1005; 1017; *1038; 1052; *1087; 1099; *1163; 1223; *1258
—Straight fares preferred to zone system in Italy [Cusani], *464
—Suburban division's system, Detroit, 1107
—Two-zone plan recommended for Boston, *134

*Illustrated.

READ THE INSTRUCTIONS AT THE BEGINNING OF THE INDEX

PERSONAL INDEX

(with biographical notes)

Aldrich, Herman M., 122	Fenton, E. Burt, 1251	Loring, Homer, 210	Roby, Daniel L., 1196
Alexander, George M., 894	Ferguson, Homer L., 1074	Lyman, Richard E., 1251	Sause, William L., 439
Allison, H. O., *894	Gadsden, Philip H., *389	McClellan, William, 895, 1031	Seanlon, Daniel A., 77
Bailey, F. A., 763	Garrison, Lindsey Miller, 895	McConnell, M. J. B., 894	Schmidt, Emil G., 165, 490
Baughart, C., *547	George, Howard H., 895	McGrath, D. J., 719	Seixas, Edward E., 438
Barnes, Donald C., 1030	George, Roy W., 986	McLimont, A. W., *439	Sherman, James R., 672
Barnum, H. Ware, 122	Gibson, James E., *1297	McMillan, J., 1297	Shepherd, L. K., 388
Barry, J. M., 122	Gillette, Edmond S., *806, 1196	McPherson, J. C., 258	Slater, C. C., 673
Belcher, R. W., 806	Gillette, C. Walter, 547	Maguire, Phillip F., 763	Smith, Charles H., 719
Belden, David A., 1030	Gillette, Edmond S., 1196	Maher, Edward A., Jr., *1195	Smith, Hartley Le H., *347
Belling, John W., 1075	Glendening, J. W., 439	Means, J. M., 986	Smith, J. Willson, 673
Bender, Homer C., 165	Glover, M. W., 672	Mellen, William A., 439	Smith, Raymond H., *718, 1031
Berry, Joseph F., 941	Goldmark, Godfrey, 122, 1251	Milam, Lynn B., 987	Sparks, W. C., 257
Billing, John W., 1075	Goodrich, J. O., 491	Mullaly, Thornewell, 491	Sparrow, John, 491
Bleeker, John S., *301	Green, Theodore F., 490	Murch, George A., 719	Spofford, R. W., *895
Bliss, Zenas W., 491	Grosvenor, B. N., 77	Murphine, Thomas F., *762	Sprague, Isaac, 210
Blyden, J. C., 438	Haegensick, E. H., 490	Murphy, Ernest A., 719	Sparrow, John, 491
Brymner, D. H., 894	Hall, C. A., *164	Murray, William S., 1030	Stewart, E. K., 259
Calder, C. E., 673	Hamilton, Frank T., *673	Nash, L. R., *15	Stiffler, Charles B., 164
Cameron, David, 672	Hansen, Harry C., 763	Neal, W. V., 625	Sullivan, William A., 894
Carraway, Leake, 1127	Harrison, Edgar, 77	Newell, George, 1074	Swan, Frank H., 301
Carson, A. G., 1126	Hedges, Job E., 673	Nixon, Lewis, 941	Sweetland, Cornelius S., 1251
Charlton, Earle P., 210	Helmreich, L. M., 986	O'Keefe, J. D., 259	Tabb, J. N., 625
Ching, Cyrus S., 1031	Henderson, David W., 763	Ong, J. R., 547	Taylor, A. Merritt, *113
Clapp, Edwin W., 258	Henderson, W. J., 719	Oraker, B. E., 347	Taylor, Clyde, 1196
Clark, Eugene C., 806	Howard, R. M., 259	Parke, B. E., 347	Tobin, George F., 894
Clough, William, 164	Jackson, James F., 766	Perkins, J. O., *1030	Townley, Calvert, *986
Clure, W. O., 1075	Jackson, Walter, 1297	Perkins, J. R., 1126	Tretton, J. P., 258
Cole, A. B. W., *490	Jacobi, H. H., 490	Phillips, S. T., 122	Tulley, Joseph L., 164
Collins, J. F., 301	Joel, J. M., *547	Pierce, Guy C., 1031	Underwood, Fred V., 624
Coman, E. E., 301	Johnson, J. C., *1031	Piper, Alexander R., 165	Vanderveer, J. H., 77
Cooke, Charles B., Jr., 895	Junonville, H. J., *763	Price, C. W., 672	Vanderhuy, Arthur G., 210
Crowell, H. H., 1126	Junkersfeld, Peter, *763	Raisch, John W., 1196	Walker, Frank B., 1031
Crowley, Fred E., 210	Katte, E. B., *1195	Ramey, E. F., 1075	Wells, Gardner F., 301
Cunningham, Nicholas J., 807	Kelsey, George H., *491	Ransom, Edward D., 887	Wells, Rolla, 807
Delaney, John H., 1074	Kempster, A. L., *847	Ray, Frederick L., 1031	West, Edward A., 625
Douglas, H. T., 77	Lake, J. P., 164	Reed, Clarence K., 1126	Weston, Charles V., 76
Dozier, Joseph E., *672, 941	Lamme, Benjamin G., *387	Reinhardt, P. C., 1297	Weston, George, 76
Dressel, H. J., 301	Lawless, J. E., *625	Retalack, John L., 1075	Williams, Timothy S., 210
Dunlop, A., 301	Laying, J. F., *34	Richardson, G. A., *762	Wilson, J. R., 625
Dunbar, S. R., 895	Lindley, Harry H., 164	Rink, Frank, 122	Wilder, Clifton W., 347
Edmonston, F. R., 259	Loring, Homer, 210	Rockwell, J. C., *895	Wilder, Clifton W., 347
Elliott, William, 1297	Lyman, Richard E., 1251	Royce, F. P., *257	Wylie, Walter H., 211

*Portrait.

AUTHOR INDEX

A

- Adams, Henry B. The preservation of humanity, 231
 Ainey, William D. Variables prevent one general solution, 514
 Allen, John S. Service supremely important, *688
 Alsaker, Alfred. Elements of a successful outdoor substation, 731
 Andrews, H. L. Why the safety-car is popular, 652

B

- Babcock, A. H. Fitting the locomotive to its load, 1139
 Beeler, John A. Economics of skip stop, 1097
 Eeers, R. S. Life of controller segments and fingers, *697
 —Renewal of controller shafts, *61
 —Treatment of loose drum controller cylinders, 319
 Bernard, M. Estimating life of curved special work, 1018
 Bolt, Walter C. Equipment inspection on a kilowatt-hour basis, *375
 Bolus, G. H. What makes a good trolley hanger, *595
 Browne, O. G. Self-insurance for workmen's compensation, 1176
 Burdick, E. J. Skip stops in Detroit, *97
 Butler, W. C. Making emergency gears, *331

C

- Calder, J. M. Welding truck frames, *586
 Casey, W. E. Bonus system to reduce coal consumption, *267
 Castiglioni, F. Increasing earning capacity, 1181
 Chamberlin, W. D. Unloader for construction cars, *324
 Clarke, E. C. Training platform men, 1056
 Clark, Harlow C. Railways as agents of the public, 1011
 —Service-at-cost franchise, 1219
 —Testimony before U. S. Chamber of Commerce, 916
 Clayton, W. Free rides and other things, 195
 Cole, A. B. Electric freight haulage an economic duty, *39
 —Electric locomotives of moderate capacity, *1152
 —Hints for the freight operator, *397
 —Merchandising of transportation, 460
 —Requirements and costs of handling freight, *219
 Conrad, H. V. Lubrication of air compressors, 424
 Conway, Thomas, Jr. Solving the traction problem, 1157
 Copley, C. H. Device for insuring proper trolley pole position, *968
 Cram, R. C. Electric railway bridge maintenance, *952
 —Lighter cars needed, 1182
 —Tie-renewal cost reduction, *308
 —Timber preservation to reduce maintenance costs, *397
 Crowell, H. H. Reproduction cost is fair, 500
 Cusani, Ferdinando C. Co-operation of automobile men good for electric railway industry, 1110
 —Italy prefers straight to zone fares, *464

D

- Dawson, Philip. Future of heavy electric traction, 1160

- Dean, John S. Electrical versus mechanical troubles with motors, *657
 —Manufacturers' tests of railway motors, *777
 —Results from dipping and baking motor coils, *190
 Dewhurst, John A. Traffic characteristic graphs, *694
 Drum, A. L. Maintenance and depreciation allowances in service-at-cost franchises, 512
 Dunham, W. R. Some results from rail conservation, *562

E

- Eckart, N. A. Maintenance practice of San Francisco Municipal Railway, *559
 Edward, M. Electric railways in South Africa, *685
 Elliott, Clifford A. Eliminating ground-squirrel pest, *105
 —Removal and reinstallation of a smoke stack, *580
 —Shelters and stations on Pacific Electric's interurban lines, *733
 —Tool list as aid in economical maintenance of way, 271
 Elmquist, Charles E. Through a commissioner's eyes, 509
 Erickson, Halford. Indeterminate franchisees, 1206
 Escholz, O. S. Determining the characteristics of metallic-electrode arc welds, *280

F

- Findlay, W. S. Interborough's 60,000-kw. turbo-generator, *906
 Fisher, Irving. Higher prices sure to continue, 1094
 Fredericks, Ernest P. Canadian lines near breaking point, 91

G

- Gadsden, Philip H. Problems faced by industry, 4
 Glaser, Julius. Temporary inspection facilities in New York, *184
 Gottschalk, Otto. Maintenance of car lamps, 282
 —Maintenance of Edison-type storage batteries, *315
 Grauten, S. H. New substation in Kansas City, *326
 Gruhl, Edwin. Rate of return in service-at-cost franchises, 502

H

- Halmos, Eugene E. Riding habit in large cities, 927
 Harre, Charles R. Extending the life of wood poles, *554
 —Pole guys, *321
 —Pole-top fittings, *1204
 —Stress in stranded conductor cores, 880
 —When a line pole needs a guy, *139
 Hawkins, C. L. Risers increase life of frogs, *1280
 Hellmund, R. E. Data needed on carbon brushes, 195
 Henry, Charles L. Results of governmental control of express, *927
 Hershberger, D. C. Safety cars for interurban service, 1270
 Holden, Thomas S. Present conditions fix "normal" prices, 1095
 Hulbert, William R. Welding special-alloy rails, 973
 Hulme, J. W. Snow sweepers made open cars, *148

- Humphrey, K. B. Maps carried on French cars, 1182

J

- Jackson, Alexander. Traffic improvement, 1049
 Jackson, Carl D. Public utility regulations, 230
 Jackson, Walter. The zone fare in practice, *355; *446; *632; *814; *854; *875; *909; *921; *1005; *1017; *1038; *1052; *1087; *1099; *1103; *1225; *1258
 Johnson, H. A. Mechanical developments of the industry, 229
 Jones, Charles H. Automatic substations on the North Shore Line, *84

K

- Kealy, Philip J. It is time for valuation compromise, 511
 —Safety cars a live proposition, 1170
 Kelsay, G. H. Economics in the power house, *455
 Kenyon, O. A. New developments in arc welding, 63
 Kingsley, F. Why gasoline can't compete in city service, 829
 Klein, W. C. Snow fighting equipment of Lehigh Valley Transit Co., *193

L

- Layng, J. F. Skip stop as a fuel saver, *34
 Lloyd, Charles F. Sources of economy in automatic substations, 922

M

- Maize, F. P. Light-weight air fender for one-man car, *596
 "Manager." What the questionnaire taught, 747
 Marshall, E. Operating data for Cascade Tunnel, *1217
 McKelway, G. H. Third-rail bonding, *1154
 —Choice of rail bonds, *591
 —Copper-clad wire for spans, 332
 —Prevention of rail-bond thefts, *375
 McMath, Thomas B. Emergency special-work construction, *145
 Miller, Elam. Pipe drainage as cure for electrolysis, 702
 Mitchell, L. A. Cinder ballast, 106
 Mitten, Thomas E. Private operation with public ownership seems the best solution, 272
 Moist, G. B. Bond and joint maintenance, *573

N

- Nash, E. J. Results with automatic substation at Butte, *565
 Nash, L. R. Service-at-cost franchises, 15

O

- Oakley, George E. Maintenance of door engines, *588
 O'Erian, Denis Rust prevention for steel conservation, 243
 "Observer." Commutation tickets would help, 286
 —Seatless cars desirable, 1182
 Ogburn, Charlton. Public apathy to electric railway problem, 692

*Illustrated.

READ THE INSTRUCTIONS AT THE BEGINNING OF THE INDEX

P

- Pahn, Lucien A. Rehabilitation of disabled soldiers, 90
- Palmer, L. H. Rerouting plan for Baltimore, *1082
- Pegram, W. M. Effect of vibrations on rail failures, 1111
- Pellissier, George E. System in the armature room, *95
- Pierce, Daniel T. Rehabilitation of French tramways, *1101
- Pike, E. L. Machine for testing car jacks, *587
- Pride, J. D. Finishing welded air compressor cylinders, *738
- Protzeller, H. W. Branch line operation with self-propelled cars, *1149

R

- Raymond, W. G. Iowa State Board of Conciliation described, 1274
- Renshaw, Clarence. Railway conditions in 1918, 60
- Roper, D. W. Pipe drainage as cure for electrolyses, 702

S

- Sahn, Paul A. B. Stresses in cable wires, 786
- Schutt, C. E. Can effect of a fare increase be predicted? *741

- Scott, Charles L. Cooperation makes safety work successful, 339
- Scott, Julian M. Welding manganese special work, *1227
- Shaw, O. J. Diesel engines at Lincoln, *902
- Shepard, E. R. Leakage resistance of electric railway roadbeds, *172
- Return circuit studies in Milwaukee, *770
- Shoup, Paul. How Federal Electric Railway Commission may help, 1277
- Sisson, Francis H. Electric railways and investors, 506
- Spring, Edw. C. Appreciation means much, 475
- Squier, C. W. Car equipment service tests, *128
- Car performance predicted from test results, 1209
- St. John, John. What the future holds, 689
- Storrs, L. S. Connecticut lines need help, 237
- Sullivan, R. T. Ethical aspects of the fare situation, 413
- Sutton, H. C. Electrolytic joint corrosion, 702
- Swartz, A. Skip stops* reduce accidents in Toledo, *690

T

- Taylor, A. Merritt. A square deal is needed, 498
- Thomas, Theodore E. Suggestions for mechanical ticket issue for differential fare scheme, 1109
- Tippett, H. Jackson. Track reclamation by welding and grinding, *773
- Townley, Calvert. Steam railroad electrification, 605
- “Traffic Engineer.” Commutation fare plan discussed, 747

*Illustrated.

READ THE INSTRUCTIONS AT THE BEGINNING OF THE INDEX

V

- Vernon, H. Wheel and axle practice at Belfast, *961; 971

W

- Walker, E. M. Safety cars and skip stops, 1282
- “Way Engineer.” Accurate track cost data needed, 972
- Weatherwax, Harry B. Electric railways hard hit by war, 1177
- Weber, E. Bonus system to reduce coal consumption, *267
- Wells, Gardner F. Transportation work of the U. S. Heating Corp., *7
- Wensley, R. J. Adaptation of automatic control to motor-started converters, *948
- Whelan, N. J. Public utilities in community development, 655
- Whitlock, W. L. Mechanical pusher for unloading flat cars, *924
- Modern appliances in track construction, *995
- Wilcox, Delos F. Situation of New York transit lines, 333
- The elements of cost of service, 1220
- Williamson, P. Car body maintenance at Belfast, *1058
- Wing, George C. Cars should carry passengers, not seats, 1110

Y

- Yereqnee, W. B. Relief of congestion at Youngstown, Ohio, 1062
- Yungbluth, B. J. Distribution of materials and supplies, 473