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MAIN LINE TO EFFICIENCY



Here's a key to efficiency in electronic classification yards, C.T.C.—and all railroad communications. It's QUALPETH cable—specially made for today's high-speed communications systems. QUALPETH's unique manufacturing process produces a uniform, concentric sheath, which assures low resistance and capacitance unbalance and low mutual capacitance deviation. This means clear signals with minimum crosstalk, echo or noise. Specify QUALPETH—for aerial, duct or direct-buried service... figure 8, too. It's another quality product of General Cable—leader in communications wire and cable.

General Cable Corporation, 730 Third Avenue, New York 17, N.Y.

GCC
GENERAL CABLE CORPORATION

NEWS BRIEFS

- EXHIBITS will be on display at the 1962 annual meeting of the AAR Communication and Signal Section at the Sheraton-Chicago Hotel, Oct. 23-25, in Chicago, Ill. The exhibits will be sponsored by the Railway Signaling and Communications Suppliers Association.

- LOUISVILLE & NASHVILLE has ordered Velac automatic yard control equipment from Union Switch & Signal Division of WABCo. for use at DeCoursey, Ky. Included will be four retarders for the 24-track classification yard, automatic switching with a preprogrammed punched tape, and push-button leaving speed selection for the group retarders.

- 50-YEAR TRACK LIFE (for tangent track) has been predicted by G. M. Magee, director of engineering research, AAR, in a recent article in *Railway Age*. To do this, continuous welded rail would be used, and Mr. Magee urges that the elimination of insulated joints would be beneficial. He suggests "a development in the signal system where an electrical isolation of each block will not be required. A method of actuating grade-crossing signals without the requirement for circuits isolated by insulated joints is being used to some extent. It does not seem outside the realm of possibility that advances in technology will bring forth a development whereby signals can be adequately and safely actuated without the requirement for the insulated-joint type of circuit."

- BALTIMORE & OHIO has received ICC approval to install a traffic control system on about 20 miles of road between Loveland and Midland City, Ohio. CTC will be installed on sections of one and two main tracks, replacing ABS on two main tracks in the entire territory.

- SEABOARD AIR LINE has received ICC approval to install a traffic control system on sections of single and double track between Aberdeen and Hamlet, N. C., in connection with removal, or conversion to a siding, of sections of one main track.

- PENNSYLVANIA has contracted with Radiation Service Co. to expand and coordinate the road's two-way radio communications system through-

at metropolitan Philadelphia. The new lease contract calls for Radiation Service to furnish and maintain multi-channel, transistorized radio equipment for more than 100 locomotives, plus the establishment of a new communications control center at "S" tower to coordinate yard and mainline operations. Five-frequency units will be installed in 80 of the 120 mobile units and two-frequency units will be utilized in the remaining 40.

● CHICAGO, BURLINGTON & QUINCY has ordered interlocking and signaling materials from Union Switch & Signal, for installation at Mendota, Ill.

● NEW YORK CENTRAL has received ICC approval to install a traffic control system on sections of single and double main track, as well as modifications to existing block signal and automatic train stop systems, on approximately 25 miles of road in the vicinity of Syracuse, N. Y., all in connection with the removal of the present passenger station and associated interlockings and the removal of two main tracks through the city.

● ILLINOIS CENTRAL and Nickel Plate have received ICC approval to replace a mechanical interlocking at Neoga, Ill., with an automatic interlocking. The IC and the Mississippi Central have received approval to remove a mechanical interlocking at Brookhaven, Miss., and replace it with an automatic plant.

● MILWAUKEE ROAD is planning to install microwave this year between its Chicago headquarters and Bensenville, Ill., 15 miles. Microwave path studies have been made for routes between Chicago and Milwaukee, 85 miles; Chicago and Minneapolis, 421 miles; and between Chicago and Savanna, Ill., 137 miles.

● NORTHERN PACIFIC has ordered 50 all-steel cupola-type cabooses, which will be radio-equipped, from the International Car Division of Morrison-International Corp.

● DELAWARE & HUDSON will spend \$41,570 for two hotbox detectors to be installed at West Richmondville and South Schenectady, N. Y. The D&H will also install additional radio equipment on highway vehicles.

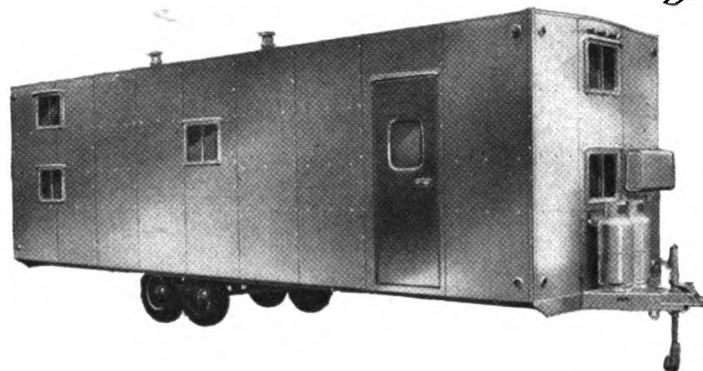
● OPERATIONAL FIXED MICROWAVE COUNCIL at its recent annual meeting approved the appointment of a six-man committee for the development of a new or improved plan for
(Please turn to page 49)

COSTLY COMMUTING?



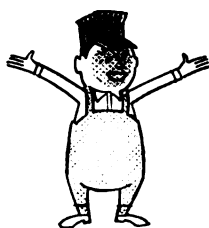
HIGH HOTEL BILLS?

LOST WORK HOURS?



GET RID OF THEM WITH

CampCars



CampCars put up your work crews by the track side where they give you a full day's work.

No non-productive commuter rides. No sky-high hotel bills. And, CampCar accommodations are plush enough to keep the boys happy, yet economical enough to keep management contented, too.

CampCars will house from 2 to 50 men, are available in many floor plans and—so help us—have proven their ability to pay for themselves in ONE YEAR.

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Get the details (with pictures) by writing International Car Division, 835 Englewood Avenue, Buffalo 23, New York.



INTERNATIONAL CAR DIVISION
R A Subsidiary of Ryder System, Inc.

(Continued from page 47)

engineering and recording technical information with respect to private microwave communication systems. The projected committee would consist of two members each from the equipment manufacturing field, microwave user organizations and the FCC.

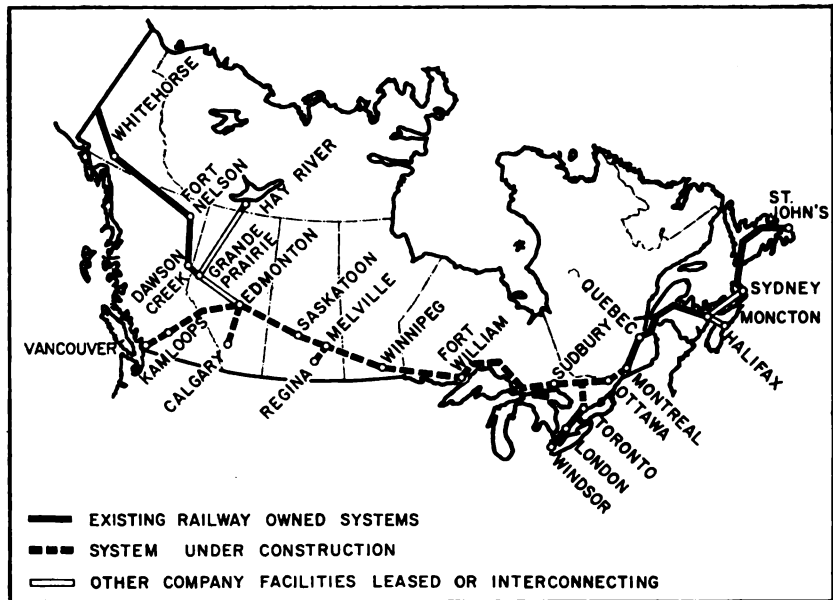
A. Shipman, of the American Petroleum Institute, was elected chairman of the OFM Council, succeeding E. Kearney, engineer of the Communication and Signal Section, AAR.

LOUISVILLE & NASHVILLE will install centralized traffic control between Birmingham and Calera, Ala., 12 miles. This installation, to cost \$2,560, will feature coded track circuits for signal control without use of wires. Control will be from a board already in operation at Birmingham.

LEHIGH VALLEY has received FCC permission to discontinue its automatic intermittent train stop system between Newark, N. J., and Sayre, Pa., 2 miles. The 480 wayside inductors, installed as part of the system during the 1920's, are in need of replacement and the railroad felt that the \$250,000 needed to replace the inductors was wholly unnecessary because of a considerable reduction in traffic (very few trains are operated within less than a half hour of the preceding train); maximum authorized speed is now 50 mph; passenger trains are operated; and the double-track line is equipped with automatic block signals.

TRANSCANADA MICROWAVE system will soon be under construction by the Canadian National and the Canadian Pacific. The 3,000-mile, \$6 million system will link Montreal, Que., with Vancouver, B. C. Owned and operated by both railroads, the CN will have administrative and operating responsibility for that portion between Vancouver and Melville, Sask., while the CP will have similar responsibility for the Melville-Montreal section. The system will be away from major cities, for defense purposes, but will have spurs into many of them, such as Ottawa, Toronto, North Bay and Fort William, Ont.; Winnipeg, Man.; Regina and Saskatoon, Sask.; and Edmonton, Alta.

A \$12 million contract has been let to RCA Victor Co. of Canada, Ltd., for the microwave equipment, and the initial system will have a capacity of 100 voice channels. While the primary



use will be for commercial and business communications, railway communications will also be handled. The new microwave system is expected to be in service by the end of 1963.

This microwave has been called an unnecessary duplication of existing facilities by H. G. Young, chairman of the Trans-Canada Telephone System. In reply, CN president Donald Gordon

and CP president N. R. Crump, said "that in the past 10 years the volume of communications business handled by the railways has tripled." Wire lines can't handle the business, the railway leaders stated and, therefore, a microwave system is essential if the railways are to continue to compete for communications services.

(Please turn to page 50)



Gas-filled tubes discharge high voltages faster than carbon blocks — ten times faster than air gaps — and discharge both sides of the pair at the same instant.

TYPE 167-B For Carrier Terminals

Panel type. Two 300-500 volt, plug-in tubes; two 6-amp, auto-reset circuit breakers. Each tube discharges its respective line (power or telephone). Circuit breakers also serve power line and prevent follow-up arcs from normal current.



TYPE 167X1

For Telephone Lines

Single-tube, single-pair protector. Plug-in type, 300-500 volt tube. Bracket mounting, snap-on weather-proof cover. For carrier lines and drop side of subscriber carrier terminals.

Write or call us for Bulletin 259-C



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(Continued from page 49)

Current Publications

For further information, please circle "CP" number on Reader Service cards, pages 43 and 44.

● **RESISTANCE TESTER.** An 8-page illustrated bulletin 21-60, describes the new Wheatstone bridge and megger insulation tester that is a compact, portable test unit. Specifications, charts, photographs and circuit diagrams explain the instrument and its use. *James G. Biddle Co. (CP-13)*

● **RADIO MULTIPLEX SYSTEM.** A new product bulletin describes the type B121R system, which permits the adding of up to 62 carrier-derived voice frequency channels on point-to-point microwave radio systems. *Lynch Communication Systems, Inc. (CP-14)*

● **HOTBOX DETECTOR.** A four-page brochure, GEA-6950A, describes GE's electronic control system utilizing infrared-sensitive scanners for trackside detection of overheated journal boxes. Photographs and diagrams show system equipment and how it works. Appli-

cation information explains how system may be modified for one or two-way scanning, remote inspection readout by wire or carrier current transmission. *General Electric Co. (CP-15)*

● **AC GENERATORS.** Kato generators from less than 1 up to 1,000 kw are described in a new brochure. The generators are made in brush or brushless types in a wide range of sizes, voltages and frequencies. All necessary controls and switchgear can be supplied. *Kato Engineering Co. (CP-16)*

● **TRENCHERS.** The Parsons model 77 trencher is capable of digging up to 18" wide ditches. The machine is only 5' 8" high, is 48" wide and weighs 7,800 lb. It has self-cleaning buckets, tractor type crawlers, double acting hydraulic boom hoist, and 16 speeds forward with engine-traction transmission combination. *Parsons Co. (CP-17)*

● **ELECTRONICS DATA HANDBOOK.** The third edition of this handbook includes data on basic transistor formulas and symbols, circuit diagrams, charts of interchangeability between various types of radio batteries and American and British vacuum tubes, information on db gain and loss, as well as various mathematical tables including algebraic and electronic formulas.

Catalog 37 K398, price 35 cents *Allied Radio Corp. (CP-18)*

● **ELECTRONICS HANDBOOK.** The ninth edition of "Essential Characteristics" of GE receiving tubes, television picture tubes and replacement capacitors includes such information as capacitance ranges, voltage ratings and dimensions of over 400 capacitors. Also included are characteristics of over 1,700 vacuum tubes, including circuit diagrams. Publication No. ETR-15, price \$1.50. *General Electric Co. (CP-19)*

● **TEST EQUIPMENT.** A series of DC differential voltmeters, voltage dividers, AC voltmeters, power supplies and potentiometers are described in a new catalog, F-162. Illustrations, specifications and dimensions of the instruments are provided, as well as a list of sales representatives. *John Fluke Manufacturing Co. (CP-20)*

● **DATA TRANSMISSION SYSTEMS.** New literature is available on the type B109 multiplexing system designed to provide one-way or two-way voice and data circuits for use on wire line, cable or radio systems. The system is a standard carrier providing up to 61 channels in the 3 kc to 500 kc band of radio or microwave system, or up to 10 channels in the 6-62 kc band on wireline system. *Lynch Communication Systems, Inc. (CP-21)*

● **RCA RECEIVING TUBE MANUAL (Technical Series RC-21)** is now available for \$1 at distributors or direct from RCA. The 480-page manual provides technical data on over 900 receiving tubes, including new nuvistors and novar types. Data on some 100 picture tubes is also included. *RCA Corporation of America. (CP-22)*

● **MOTION PICTURE.** A 16-mm color or sound motion picture, "Accent: Reliability," tells a story of reliability in electronic components. The film shows how the human element influences reliability in the production of rectifiers and capacitors. It illustrates how Fansteel manufactures tantalum capacitors and shows Fansteel's "white room," where silicon rectifiers are assembled. Running time is 22 minutes. Prints suitable for projection on 16-mm sound equipment are available. *Fansteel Metallurgical Corp. (CP-23)*

● **"T" & "PI" PADS.** A Tech-Chart features a table providing ready reference for building "T" and "PI" type pads for values between 1 db and 60 db using standard resistance values. On the back is a conversion table providing dbm values for various imped-

AERIAL "RADAR" TERRAIN PROFILING



FOR RAILROAD MICROWAVE INSTALLATIONS

System Design and Surveying
with-

- SPEED
- ACCURACY
- LOW COST — LESS THAN \$20 PER MILE
- GUARANTEED CLEARANCES TO YOUR SPECIFICATIONS
- COMPLETE ENGINEERING SERVICES



TELEVISION ASSOCIATES OF INDIANA, INC.
A SUBSIDIARY OF MELPAR, INC.
MICHIGAN CITY, INDIANA, U. S. A.

...nces encountered during testing of electronic equipment. *Lynch Communication Systems Inc. (CP-24)*

● **CARRIER LINE TREATMENT.** An Equipment Characteristics Manual, featuring Lynch line treatment equipment for carrier applications, is now available. The book provides complete descriptions, drawings, specifications, and ordering information on Lynch line filters, coupling networks, repeat coils, autoformers, and balance networks. An introduction explains the purpose of line treatment equipment, its applications, and explanations of technical terms. *Lynch Communication Systems Inc. (CP-25)*

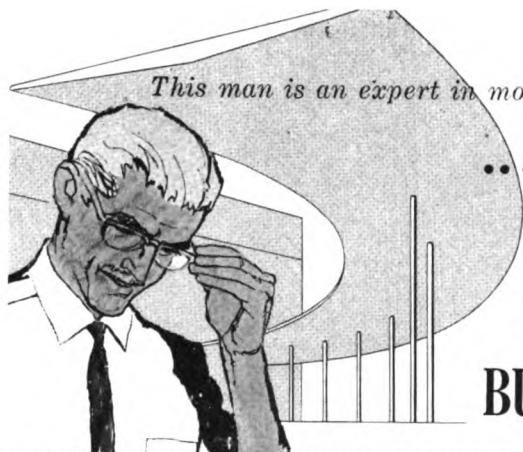
● **101 MORE WAYS TO USE YOUR VOM AND VTVM** describes circuit tests that can be performed with VOM's and VTVM's, including checking impedance of T and L pads, measuring sensitivity of FM mobile receivers, determining power sensitivity of amplifiers, etc. 128 pages, \$2.50. Photofact publication catalog No. TEM-8. *Howard W. Sams & Co., Inc. (CP-26)*

● **BASIC MATHEMATICS, Vol. 3,** includes discussion of binary arithmetic, probability, differentiation, series, integration, conic sections, determinants, and systems of coordinates. It is a picture-text course utilizing the unity of mathematics approach. 152 pages, \$3.90. *John F. Rider Publisher, Inc. (CP-27)*

● **MEASUREMENT AND CONTROL.** "Industrial Electronics Measurement and Control," a Photofact publication, discusses electronic techniques for measuring pressure, temperature, moisture, time, speed, frequency, etc. Control of temperature, motors, lighting and positioning is also discussed. \$3.95. *Howard W. Sams & Co., Inc. (CP-28)*

● **RELAYS.** "Basic Principles and Applications of Relays" discusses relay construction, operation, and application at the technician level. Timing circuits and electronic control of relays is also covered. Relays referred to are of the small industrial type; the text uses telephone-type contact symbols. \$2.90. *John F. Rider Publisher, Inc. (CP-29)*

● **POWER SUPPLIES.** "Design and Operation of Regulated Power Supplies," a Photofact publication, covers the various techniques used to regulate electronic power supplies using vacuum tubes, gas tubes, and transistors, zener diodes, silicon controlled rectifiers. (Please turn to page 52)



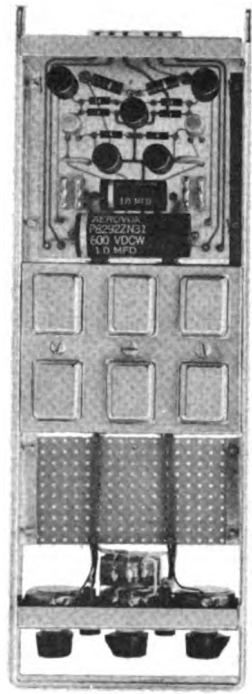
This man is an expert in modern architecture

...and in Low and Medium Density Communications **BUDELMAN** is the

specialist

Result: a NEW* Budelman VFR at a cost 80% below competition!

As an outgrowth of extensive lab and field testing, Budelman provides a new and improved VFR* Type 251A, at less than \$100 per unit. It is the *lowest-cost, high-gain repeater* . . . incorporates newly designed transistorized circuitry* for uniform speech gain over *any* telephone line facility. Stability is excellent even without auxiliary equipment. (When ordered with equalization networks for unloaded cables, *loading coils are not needed!*) Unit features design economy, compactness — (4 take only 1 3/4" of rack space), low power drain and built-in signaling by-pass. Installs **WITHOUT** test equipment . . . supplies usable gain of line attenuation less 3 db — 15 db maximum. *Call or write today for complete information!*



*Pat. Pending

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ELECTRONICS CORPORATION

375 FAIRFIELD AVENUE STAMFORD, CONNECTICUT
A SUBSIDIARY OF GENERAL RAILWAY SIGNAL COMPANY

NEWS BRIEFS

(Continued from page 51)

riers, and regulating transformers. \$2.95. *Howard W. Sams & Co., Inc. (CP-30)*

● **TUBE SUBSTITUTION.** "Tube Substitution Handbook, Vol. 3" lists direct substitutions for receiving and industrial type tubes, and includes a section on American-for-foreign and vice versa substitutions. Catalog No. TUB-3, 96 pages, \$1.50. *Howard W. Sams & Co. (CP-31)*

Railroad Personnel

● **SOUTHERN.** **James T. Hudson**, whose appointment as communications engineer at Washington, D. C., was reported in RSC, Jan. 1962 p. 38, was born at Columbia, S. C. He began with the Southern as a telephone maintainer. After serving in that capacity at various points he was made general foreman of communications at Charlotte, N. C., followed by assignment to Salisbury, N. C., as acting supervisor communications. He later became supervisor of communications at Knoxville, Tenn., and general supervisor of communications at Charlotte.

George E. Ryan, who succeeded Mr. Hudson as general supervisor of communications at Charlotte, was born in Ludlow, Ky., and was first employed by the Southern as a telephone maintainer. He was promoted to general foreman of communications



James T. Hudson



George E. Ryan

and later became assistant communications engineer at Charlotte.

● **WESTERN PACIFIC.** **R. E. Enger**, general communication supervisor at San Francisco, has been appointed communication engineer there. He has been succeeded by **B. G. Rumsey**, communication supervisor at Sacramento, Calif.

● **ILLINOIS CENTRAL.** **R. O. Ringland**, supervisor of signals at Champaign, Ill., retired April 1. **T. J. Kremer**, supervisor of signals at New Orleans, La., has been transferred to Champaign, succeeding Mr. Ringland, and **J. H. Stroud**, field signal engineer, in the office of the signal engineer at Chicago, has been appointed supervisor of signals at New Orleans.

● **PENNSYLVANIA.** **G. H. Ward**, assistant supervisor communications and signals at Wilmington, Del., retired March 1. **R. N. Hettrick**, assistant supervisor C&S at Fort Wayne, Ind., has been transferred to Wilmington, succeeding Mr. Ward. **L. R. Hack-**

welder, assistant office engineer C&S at Pittsburgh, Pa., has been advanced to assistant supervisor C&S, succeeding Mr. Hettrick at Fort Wayne.

● **ERIE-LACKAWANNA.** **Lester C. Moore** has been named supervisor communications and signals of the Terminal and New York Divisions Hoboken, N. J. **Jack H. Storms**, supervisor communications and signals Hoboken, has retired.

● **NEW YORK, NEW HAVEN & HARTFORD.** **H. H. Brainard**, signal supervisor at New Haven, Conn., has been appointed general signal supervisor there, succeeding **P. H. Sullivan**, retired. **H. J. Foster**, assistant signal supervisor at New Haven, has succeeded Mr. Brainard.

Supply Trade News



Don H. Steiner



John W. Logan

● **AMERICAN STEEL & WIRE DIVISION**, United States Steel Corp. **Don H. Steiner** has been appointed sales engineer for railroad and special products in the eastern seaboard area. Mr. Steiner is a native of Chicago, Ill., and attended the University of Illinois. He was employed on the railroads for 27 years, and most recently was superintendent of signals and communications of the Monon. He was previously with the Milwaukee Road.

● **SIMPLEX WIRE & CABLE CO.** **John W. Logan**, executive vice-president, has been elected president and chief executive officer, succeeding **Everett Morss**. Mr. Logan joined Simplex in 1959 as a vice-president. He is a graduate of the University of Missouri with a B.S. degree in electrical engineering.

● **STAINLESS, INC.** **Henry J. Guzewicz**, vice-president, has assumed the duties of chief executive officer and president, succeeding the late **Walter L. Guzewicz**.

Obituary

● **WALTER L. GUZEWICZ**, 51, president of Stainless, Inc., North Wales, Pa., died suddenly on February 11.

This Was News 50 and 25 Years Ago

The Signal Engineer, April 1912. Gray-Thurber automatic train control system provides cab signal indicator as well as audible whistle for a "caution" signal and a pulsating magneto electric bell sounds when a "stop" signal is received.—Missouri Pacific is installing a telephone manual block system on all of its mainlines, covering nearly 3,000 miles of track.—Western Maryland installs all-electric interlocking with 26 working levers near Cumberland, Md., at a junction with the PRR and WM's extension to Connellsville, Pa.—Southern Pacific has reports showing that more than 40% of the block signals in operation in the U.S. are on its own lines. ABS is in service on more than 3,000 miles of SP lines.

Railway Signaling, April 1937. Grand Trunk Western installs facing

point cross-over protected by interlocked signals at Lansing, Mich., thereby enabling eastbound passenger trains to make station stops on westward track. New signaling permits road to retire a wood platform, thereby eliminating annual maintenance costs.—Milwaukee Road is effecting marked economies and expediting its service in the Chicago area through the use of a teletypewriter network connecting classification and industrial yards and car accountant's office to handle train consist reports and messages.—Union Pacific replaces lower quadrant semaphores with colorlight signals on 45 miles of double-track mainline. Three-aspect colorlights are replaced to provide adequate braking distance. Grade signal indication is provided by yellow-over-yellow aspect.