

# Index to Authors, Volume 28

## A

ADAM, A. O. . . . .	No. 5 Crossbar Marker . . . . .	502
ALLISON, S. W. . . . .	Combined Key Set for D-C and Multifrequency Key Pulsing . . . . .	53
ALSBERG, D. A. . . . .	Phase Measurements for L Carrier Components . . . . .	307
AMADON, C. H. . . . .	Termites and Their Control in Telephone Poles . . . . .	348
AVERY, R. C. . . . .	Pretranslation in No. 5 Crossbar . . . . .	156

## B

BACON, W. M. . . . .	The 81-C-1 Teletypewriter Switching System . . . . .	145
BECK, A. C. . . . .	Conductivity Measurements at Microwave Frequencies . . . . .	433
BISHOP, G. S. . . . .	Connectors for the No. 5 Crossbar System . . . . .	56
BOGERT, B. P. . . . .	Network to Represent the Inner Ear . . . . .	481
BROBST, D. R. . . . .	Plastic Covers for Switchboard Cable . . . . .	289
BRUBAKER, J. W. . . . .	The Automatic Monitor . . . . .	343

## C

CLUTTS, C. E. . . . .	TD-2 Radio Relay System . . . . .	442
COOKE, L. B. . . . .	Murray Hill Auditorium as a Listening Room . . . . .	16
CURLEY, T. V. . . . .	Operator Connections in No. 5 Crossbar . . . . .	199

## D

DAVIS, K. H. . . . .	The Cathode Ray Sound Spectroscope . . . . .	263
DEHN, J. W. . . . .	Originating Dial Pulse Register Circuit for the Crossbar System No. 5 . . . . .	7

## E

ERWIN, E. L. . . . .	Trunk Selection by No. 5 Crossbar Markers . . . . .	357
ESPENSCHIED, L. . . . .	Line-of-Sight Relay Systems—Old and New . . . . .	162

## F

FERGUSON, J. G. . . . .	Design Patterns for No. 5 Crossbar . . . . .	245
FINDLEY, P. B. . . . .	First Quarter-Century . . . . .	385
FINDLEY, P. B. . . . .	The Laboratories in Monmouth County . . . . .	97

## G

GODDARD, M. C. . . . .	Ringling Selection in No. 5 Crossbar . . . . .	168
GOULD, H. L. B. . . . .	Insulation by Cataphoresis . . . . .	292
GRAUPNER, W. B. . . . .	Equipment Arrangements for No. 5 Crossbar Markers . . . . .	396

## H

HAMMING, R. W. . . . .	Error Detecting and Correcting Codes . . . . .	193
HARAZIM, S. J. . . . .	Three-Bay Cabinet for Laboratory and Shop . . . . .	458
HAURY, P. T. . . . .	A New Duct-Type Bay for Toll Transmission Equipment . . . . .	202
HEISING, R. A. . . . .	Alexander McLean Nicolson, 1880-1950. Obituary . . . . .	221
HIBBARD, F. H. . . . .	Cathode-Ray Rapid-Record Oscillograph . . . . .	438
HILL, R. B. . . . .	Angus S. Hibbard—Pioneer Telephone Executive and Inventor . . . . .	390
HOTH, D. F. . . . .	Vibrating Reed Signaling for Mobile Radio . . . . .	72
HUDACK, J. M. . . . .	Automatic Transmission Measuring Set . . . . .	538

## J

JOHANSON, A. E. . . . .	A Tuned Plate Multivibrator . . . . .	208
-------------------------	---------------------------------------	-----

## K

KAYLOR, R. L. . . . .	A Summer's Work on the Desert . . . . .	366
KELLER, A. C. . . . .	Vibrating Reed Selectors for Mobile Telephone Systems . . . . .	2
KETCHLEDGE, R. W. . . . .	Novel Accelerometer . . . . .	529
KOECHLING, C. D. . . . .	Incoming Register Link for No. 5 Crossbar . . . . .	115
KOERNER, L. F. . . . .	A Variable-Frequency Oscillator Stabilized to High Precision . . . . .	66
KOHMAN, G. T. . . . .	Case of the Barnacled Crystal . . . . .	13

## L

LEED, D. . . . .	Automatic Frequency Control for Heterodyne Measurements . . . . .	352
LOW, F. K. . . . .	Message Register Operation in No. 5 Crossbar . . . . .	404

## M

MAHONEY, J. J., JR. . . . .	An Impulse Generator for Lightning Studies . . . . .	107
MANSON, M. H. . . . .	Detecting Diabetes . . . . .	510
MANSON, M. H. . . . .	Drill and Fill—Can Anything be Done About It? . . . . .	420
MANSON, M. H. . . . .	Give Your Heart a Helping Hand . . . . .	468
MANSON, M. H. . . . .	Something Can be Done About High Blood Pressure . . . . .	224
MARSHALL, R. W. . . . .	An Integrator for Semi-Curvilinear Coordinate Paper . . . . .	50
MARTIN, C. E. . . . .	Cold Cures . . . . .	32
MCALPINE, R. K. . . . .	Incoming Register Circuits for No. 5 Crossbar . . . . .	104
MEHRING, A. C. . . . .	Trouble Recording for the No. 5 Crossbar System . . . . .	214
MELSHEIMER, R. S. . . . .	Recent Improvements in the Telephone Clock . . . . .	494
MICHAEL, H. J. . . . .	Pulse Conversion in No. 5 Crossbar . . . . .	533
MICHAL, J. . . . .	Permanent Signals in No. 5 Crossbar . . . . .	461
MONTGOMERY, H. C. . . . .	Background Noise in Transistors . . . . .	400
MORZENTI, O. J. . . . .	Number Group Frame for No. 5 Crossbar . . . . .	298

## P

PETERSON, A. C., JR. . . . .	Multiple Close-Spaced Channels for Mobile Radio . . . . .	153
PHIPPS, G. S. . . . .	Sealing Solder . . . . .	295
PRUDEN, H. M. . . . .	Multifrequency Power Supply for Reed Signaling . . . . .	112

## R

READ, W. T. . . . .	Optical Measurements of Residual Stresses in Glass Bulbs . . . . .	62
ROYAL, W. C. . . . .	Modified Tape Armor and Lepeth Sheath Cable . . . . .	241

## S

SCHEER, W. H. . . . .	Register and Sender Testing in No. 5 Crossbar . . . . .	490
SCHOTT, L. O. . . . .	Electrical Vocal System . . . . .	549
SHIVE, J. N. . . . .	Phototransistor . . . . .	337
SMITH, P. H. . . . .	Optimum Coaxial Lines . . . . .	498
SWIFT, R. A. . . . .	Sender Link Frames for No. 5 Crossbar . . . . .	258

## W

WAGENSEIL, W. . . . .	Traffic Registers for No. 5 Crossbar . . . . .	545
WALSH, E. J. . . . .	Fine-Wire Type Vacuum Tube Grids . . . . .	165
WARNER, A. W., JR. . . . .	Improvements in Crystal Units for Precise Frequency Control . . . . .	254
WEBER, L. A. . . . .	Coaxial's New Alarm and Control System . . . . .	122
WHITEHEAD, M. . . . .	Tantalum Electrolytic Capacitors . . . . .	450
WIER, A. J. . . . .	Equipment Features of the Cable Carrier System . . . . .	22
WILHELM, H. T. . . . .	Maxwell Bridge for Measuring Loading Coils . . . . .	453
WILLIFORD, O. H. . . . .	Maintenance Facilities for the No. 5 Crossbar System . . . . .	313
WILSON, L. A. . . . .	A Message to the Members of the Laboratories . . . . .	49

## Y

YOUNG, C. H. . . . .	Precise Decade Oscillator . . . . .	487
----------------------	-------------------------------------	-----

# Index to Subjects and Titles, Volume 28

## A

### Abstracts and Comments

Business Is a Good Neighbor, Too, by K. P. Wood from <i>Public Utilities Fortnightly</i> . . . . .	507
Comments on A T & T Stock (Telephone Hour, Oct. 9) . . . . .	558
Is It Wrong to Succeed? . . . . .	318
Like a Sturdy Oak . . . . .	466
Magnificent Performance (Editorial in <i>Forbes</i> Magazine, Apr. 15, 1950) . . . . .	248
"The Prophets Guessed Wrong" . . . . .	267
Telephone Business Helps Other Business . . . . .	563
We See by the Papers, That (Visible Sound) . . . . .	417
Accelerometers	
Novel Accelerometer . . . . . <i>Ketchledge</i>	529
Air Defense Communication System	
Bell System Prepared for National Emergency . . . . .	543
Air Raid Protection	
Bell System Important to Air Defense . . . . .	316
Airplanes	
Unconventional Visitor to Murray Hill (Plane Makes Forced Landing Jan. 17) . . . . .	86
Alarm Systems, BI	
Coaxial's New Alarm and Control System . . . . . <i>Weber</i>	122
Alarm Systems see also Signaling	
American Institute of Electrical Engineers	
A.I.E.E. Committee Roster . . . . .	510
American Telephone and Telegraph Company	
Annual Meeting of A T & T Stockholders . . . . .	268
Excerpts from Annual Report . . . . .	126
A T & T Gives Views on Telephone Taxes . . . . .	78
Stock	
About 940,000 People Own A T & T . . . . .	130
Laboratories People Buy A T & T Stock . . . . .	82
Ruling on Stock Plan . . . . .	130
Stock Expansion Voted . . . . .	493
Suspension of Shares Elected Under Stock Plan . . . . .	223
Third Stock Offering . . . . .	83
Who owns the A T & T? . . . . .	452
Amplifier Probe, J44103A	
Video Monitoring Probe . . . . .	548
Analog Vocal System see Analogs, Acoustic and Electric	
Analogs, Acoustic and Electric	
An Electrical Analog of the Inner Ear . . . . .	257
Electrical Vocal System . . . . . <i>Schott</i>	549
Angus S. Hibbard—Pioneer Telephone Executive and Inventor . . . . . <i>Hill</i>	390
Anniversaries	
First Quarter-Century . . . . . <i>Findley</i>	385
Golden Anniversary for Margarita G. O'Brien (Picture) . . . . .	333
Margarita G. O'Brien's Golden Anniversary . . . . .	222
Antennas	
Constructing an Experimental Plywood Horn-Reflector Microwave Antenna (Pictures) . . . . .	421
Metal Lens	
TD-2 Radio Relay System . . . . . <i>Clutts</i>	442
Arnold Auditorium	
Murray Hill Auditorium as a Listening Room . . . . . <i>Cooke</i>	16

Astronomy, Radio	
Historic Firsts: Radio Astronomy . . . . .	120
Automatic Feed for String Saws . . . . .	198
Automatic Frequency Control for Heterodyne Measurements . . . . .	<i>Leed</i> . . . . . 352
Automatic Message Accounting	
Jersey Suburbs Begin to Use A.M.A. . . . .	227
Automatic Monitor . . . . .	<i>Brubaker</i> . . . . . 343
Automatic Teletypewriter Switching System for Ford . . . . .	399
Automatic Transmission Measuring Set . . . . .	<i>Hudack</i> . . . . . 538
Awards and Citations	
Award of Merit of the A.S.T.M. Given to H. F. Dodge . . . . .	363
Dr. Bell Elected to Hall of Fame . . . . .	556
Dodge Awarded Shewhart Medal . . . . .	315
Former Staff Member, Lester M. Field, Honored by Eta Kappa Nu . . . . .	136
IRE 1951 Fellow Awards Include Six Laboratories Men: W. M. Goodall, J. B. Johnson, W. T. Wintringham, G. N. Thayer, J. F. Morrison and W. C. Tinus . . . . .	469
The RECORD Was One of the "Highest Award" Winners in the 1950 International Industrial Publication Contest . . . . .	285
The Telephone Hour Wins "Michael" Award Given by the Academy of Radio and Television Best Arts and Sciences . . . . .	225
Vail Medal Awards . . . . .	317

## B

B1 Alarm and Control System	
Coaxial's New Alarm and Control System . . . . .	<i>Weber</i> . . . . . 122
Background Noise in Transistors . . . . .	<i>Montgomery</i> 400
Basilar Membrane Network	
Network to Represent the Inner Ear . . . . .	<i>Bogert</i> . . . . . 481
Bell Laboratories Club Annual Luncheon (Picture) . . . . .	323
Bell Laboratories Record	
First Quarter-Century . . . . .	<i>Findley</i> . . . . . 385
300th Issue of the Record Goes to Press . . . . .	428
Bell Laboratories Served by Western's New Teletypewriter Switching Network . . . . .	20
Bell System Important to Air Defense . . . . .	316
Bell System Prepared for National Emergency . . . . .	543
Bell System Rates for TV Network Service . . . . .	460
Bell System Television Network Routes (Map) . . . . .	226
Bell Telephone Laboratories	
Laboratories in Monmouth County . . . . .	<i>Findley</i> . . . . . 97
Best Heads New A T & T Department . . . . .	128
Blood Pressure	
Something Can Be Done About High Blood Pressure . . . . .	<i>Manson</i> . . . . . 224
Book Notices	
Jewett Fellow Publishes Chemistry Text (Principles of Ionic Organic Reactions, by Elliot R. Alexander) . . . . .	318
Piezoelectric Crystals and Ultrasonics by W. P. Mason . . . . .	133
Principles and Applications of Waveguide Transmission by G. C. Southworth . . . . .	467
Radar Systems and Components . . . . .	28
Traveling Wave Tubes, by J. R. Pierce . . . . .	501
Vail Medal Stories Told in New Book, "For Noteworthy Public Service" . . . . .	276
Borocarbon Resistors . . . . .	447
Bridges	
Maxwell Bridge for Measuring Loading Coils . . . . .	<i>Wilhelm</i> . . . . . 453
New Impedance Bridge Measures Small Resistance Increments . . . . .	403
Brode, Dr., at Murray Hill . . . . .	136
Buckley, Dr., Concludes School Board Service . . . . .	172

## C

Cabinets	
Three-Bay Cabinet for Laboratory and Shop . . . . .	<i>Harazin</i> . . . 458
Cable Carrier System see Telephone Systems, Carrier—Type K	
Cable Cover see Cables, Insulation	
Cable Oddity . . . . .	225
Cables	
Buried	
Modified Tape Armor and Lepeth Sheath Cable . . . . .	<i>Royal</i> . . . 241
Coaxial	
(Picture of Fanned-Out Cable Showing 8 Coaxial Tubes and Paper- Insulated Wires) . . . . .	541
Insulation	
Plastic Covers for Switchboard Cable . . . . .	<i>Brobst</i> . . . 289
Joints	
Sealing Solder . . . . .	<i>Phippis</i> . . . 295
Laying	
Novel Accelerometer . . . . .	<i>Ketchledge</i> . . . 529
Picture of Cable Ship “Lord Kelvin” . . . . .	221
Sheaths and Sheath Losses	
A Cable Oddity . . . . .	225
Modified Tape Armor and Lepeth Sheath Cable . . . . .	<i>Royal</i> . . . 241
Submarine	
Submarine Cable Links Key West—Havana . . . . .	269
Telephone	
“Exhume It, Please” . . . . .	86
Cameras	
Cathode-Ray Rapid-Record Oscillograph . . . . .	<i>Hibbard</i> . . . 438
Canadian Bell Exhibit . . . . .	558
Capacitance Bridges see Bridges	
Capacitors, Tantalum	
Tantalum Electrolytic Capacitors . . . . .	<i>Whitehead</i> . . . 448
Carillons, 25-Bell	
Two Churches Equipped with 25-Bell Carillons by Laboratories Engineers . . . . .	79
Case of the Barnacled Crystal . . . . .	<i>Kohman</i> . . . 13
Cataphoresis	
Insulation by Cataphoresis . . . . .	<i>Gould</i> . . . 292
Cathode-Ray Rapid-Record Oscillograph . . . . .	<i>Hibbard</i> . . . 438
Cathode Ray Sound Spectroscope . . . . .	<i>Davis</i> . . . 263
Cathode Ray Tubes	
Cathode-Ray Rapid-Record Oscillograph . . . . .	<i>Hibbard</i> . . . 438
Charts	
March to Higher Frequencies . . . . .	129
Mu-Beta Effect Chart for Feedback . . . . .	206
Three-Dimensional Traffic Chart . . . . .	395
Transmission Line Chart . . . . .	75
Chicago Fair of 1950 . . . . .	514
Chimney Lab see Laboratories, Testing	
Circuits, Register	
Incoming Register Circuits for No. 5 Crossbar . . . . .	<i>McAlpine</i> . . . 104
Incoming Register Link for No. 5 Crossbar . . . . .	<i>Koehling</i> . . . 115
Originating Dial Pulse Register Circuit for the Crossbar System No. 5 . . . . .	<i>Dehn</i> . . . 7
Civilian Defense	
Bell System Prepared for National Emergency . . . . .	543
Clocks, Quartz Crystal	
Crystal-Controlled Clock . . . . .	213
Recent Improvements in the Telephone Clock . . . . .	<i>Melshheimer</i> . . . 494

Coaxial's New Alarm and Control System . . . . .	<i>Weber</i>	122
Codes		
Error Detecting and Correcting Codes . . . . .	<i>Hamming</i>	193
Coils, Loading		
Maxwell Bridge for Measuring Loading Coils . . . . .	<i>Wilhelm</i>	453
Coin Collectors (Cover of July Issue of RECORD) . . . . .		297
Cold Cures . . . . .	<i>Martin</i>	32
Color Television . . . . .		370
Combined Key Set for D-C and Multifrequency Key Pulsing . . . . .	<i>Allison</i>	53
Communication Development Training Program Graduation . . . . .		364
Communications, Military		
Dr. Tradup Visits Korea . . . . .		511
Compandor		
N-1 Carrier System Goes into Service . . . . .		537
Conductivity, Electric		
Conductivity Measurements at Microwave Frequencies . . . . .	<i>Beck</i>	433
Connectors for the No. 5 Crossbar System . . . . .	<i>Bishop</i>	56
Coradi Integraph see Integraph, Coradi		
Covers		
Apparatus to Study Behavior of Holes and Electrons in Germanium . . . . .		September
Apparatus to Study Ejection of Electrons from Solid Bodies . . . . .		June
Calculations Being Made for New Type High-Frequency Amplifier Tube . . . . .		January
Christmas Cover . . . . .		December
Coin Collector Chute Life Test . . . . .		July
Drop Test of Telephone Handsets . . . . .		May
Ear Microphones to Reveal Sound Pressures of Telephone Receivers . . . . .		August
Measuring Microwave Conductivity of a Surface Finish for Wave Guides . . . . .		October
Murray Hill Laboratory . . . . .		March
New 500-Type Telephone . . . . .		February
Parabolic Dish in Microwave Propagation Tests . . . . .		April
Pyrolytic Carbon Laboratory at Murray Hill . . . . .		November
Crosstalk		
Equipment Features of the Cable Carrier System . . . . .	<i>Wier</i>	22
Historic Firsts: Far-End Crosstalk Balancing . . . . .		218
Crystal-Controlled Clock . . . . .		213
Crystals		
Cutting		
Automatic Feed for String Saws . . . . .		198
EDT		
Case of the Barnacled Crystal . . . . .	<i>Kohman</i>	13
Quartz		
Improvements in Crystal Units for Precise Frequency Control . . . . .	<i>Warner</i>	254

## D

Debentures, A T & T Convertible		
Conversion Price Lowered . . . . .		86
Dental Care		
Drill and Fill—Can Anything Be Done About it? . . . . .		420
Design Patterns for No. 5 Crossbar . . . . .	<i>Ferguson</i>	245
Diabetes		
Detecting Diabetes . . . . .	<i>Manson</i>	510
Draftsman's Day at Murray Hill (Series of Pictures) . . . . .		560
Duct-Type Bay		
New Duct-Type Bay for Toll Transmission Equipment . . . . .	<i>Haury</i>	202

## E

Ear		
An Electrical Analog of the Inner Ear . . . . .		257
Network to Represent the Inner Ear . . . . .	<i>Bogert</i>	481
Education		
Communication Development Training Program Graduation . . . . .		364
Out-of-Hour Courses . . . . .		82
81-C-1 Teletypewriter Switching System . . . . .	<i>Bacon</i>	145
Electrical Vocal System . . . . .	<i>Schott</i>	549
Electron Tubes		
427A Electron Tube . . . . .		223
430A Electron Tube . . . . .		174
Testing		
Optical Measurements of Residual Stresses in Glass Bulbs . . . . .	<i>Read</i>	62
Electronic Devices		
Trends in Electronic Components and Assemblies (Talk by E. I. Green) . . . . .		559
Electrons		
Apparatus to Study Ejection of Electrons from Solid Bodies Devised by H. D. Hagstrum . . . . .		244
Employees' Benefit Committee Annual Report—1949 . . . . .		173
Employees' Benefit Plan . . . . .		134
Equipment Arrangements for No. 5 Crossbar Markers . . . . .	<i>Graupner</i>	397
Equipment Features of the Cable Carrier System . . . . .	<i>Wier</i>	22
Error Detecting and Correcting Codes . . . . .	<i>Hamming</i>	193
Exhibits and Demonstrations		
Canadian Bell Exhibit . . . . .		558
Chicago Fair of 1950 . . . . .		514
Exhibit Shows Laboratories Developments for Telephone Service . . . . .		274
Extension Flashlight . . . . .		207

## F

Fastax		
Fastax and Waddell to Wollensak . . . . .		371
Feedback, Mu-Beta Effect Chart for . . . . .		206
Fellowships		
Frank B. Jewett Fellowships . . . . .		128
Filters		
Four-Way Cooperation Brings Quick Result . . . . .		412
Fine-Wire Type Vacuum Tube Grids . . . . .	<i>Walsh</i>	165
Finishes		
New Spraying Area at West Street . . . . .		237
Fire Brigade Refresher Course at Murray Hill . . . . .		508
First Quarter-Century . . . . .	<i>Findley</i>	385
Flashlight, Extension . . . . .		207
427A Electron Tube . . . . .		223
Frames		
Link		
Number Group Frame for No. 5 Crossbar . . . . .	<i>Morzenti</i>	298
Sender		
Sender Link Frames for No. 5 Crossbar . . . . .	<i>Swift</i>	258
Frank B. Jewett Fellowships . . . . .		128
Frequency		
Control		
Automatic Frequency Control for Heterodyne Measurements . . . . .	<i>Leed</i>	352
Improvements in Crystal Units for Precise Frequency Control . . . . .	<i>Warner</i>	254
Measurement		
Variable-Frequency Oscillator Stabilized to High Precision . . . . .	<i>Koerner</i>	66

## G

Gas-Filled Tubes	
427A Electron Tube . . . . .	223
Message Register Operation in No. 5 Crossbar . . . . .	<i>Low</i> . . . . . 404
Generators, Impulse	
Impulse Generator for Lightning Studies . . . . .	<i>Mahoney</i> . . . . . 107
Gifford, Walter S., Named Ambassador . . . . .	486
Greater New York Fund Drive, 1950 . . . . .	319
Gun Director	
Tells of Use of Laboratories Gun Director . . . . .	466

## H

Hamokahodo Test Station	
Thunder in the South . . . . .	409
Health	
Something Can be Done About High Blood Pressure . . . . .	<i>Manson</i> . . . . . 224
Heart	
Give Your Heart a Helping Hand . . . . .	<i>Manson</i> . . . . . 468
Hibbard, Angus S.	
Angus S. Hibbard—Pioneer Telephone Executive and Inventor . . . . .	<i>Hill</i> . . . . . 390
High-Speed Camera Laboratory . . . . .	412
Historic Firsts	
Far-End Crosstalk Balancing . . . . .	218
Radio Astronomy . . . . .	120
Sun Spots and Radio . . . . .	252
Holmes Company Sold . . . . .	280
House Magazines	
The RECORD Was One of the "Highest Award" Winners in the 1950 International Industrial Publication Contest . . . . .	285
How Not to Be Bored . . . . .	<i>McKeown</i> . . . . . 564
Humidity	
Thermistor Aids in Measuring Humidity . . . . .	15

## I

Impedance Bridges. See Bridges	
Improvements in Crystal Units for Precise Frequency Control . . . . .	<i>Warner</i> . . . . . 254
Impulse Generator for Lightning Studies . . . . .	<i>Mahoney</i> . . . . . 107
Incoming Register Circuits for No. 5 Crossbar . . . . .	<i>McAlpine</i> . . . . . 104
Incoming Register Link for No. 5 Crossbar . . . . .	<i>Koechling</i> . . . . . 115
Influenza Vaccinations . . . . .	563
Information Bulletin (BTL)	
High-Speed Bulletin for News . . . . .	272
Insulating Materials	
Insulation by Cataphoresis . . . . .	<i>Gould</i> . . . . . 292
Insurance	
Insurance Counselor's 25th Service Anniversary (Lloyd Bunting) . . . . .	368
Integrph, Coradi	
Integrph for Semi-Curvilinear Coordinate Paper . . . . .	<i>Marshall</i> . . . . . 50
Isotopes, Radioactive	
Radioactive Isotopes in Timber Preservation Studies . . . . .	249

## J

Jacks, 482 Patching	
New 482A Patching Jack . . . . .	542
Japanese Visitors at West Street and Murray Hill on October 11 (Picture) . . . . .	558
Jewett Fellow Publishes Chemistry Text (Principles of Ionic Organic Reactions by Elliot R. Alexander) . . . . .	318

Jewett, Frank Baldwin		
A British Tribute to Dr. Jewett . . . . .		82
Japan Holds Memorial Services for Dr. Jewett . . . . .		12
Memorial Service in Tokyo for Dr. Jewett . . . . .		61
Jewett Laboratories Dedicated at Rockford College . . . . .		556
Kappel, Fred R., Has Been Elected a Director of the Laboratories . . . . .		77
Kelly, Dr., Visits Technical Groups in Europe . . . . .		270
Key Pulsing		
Combined Key Set for D-C and Multifrequency Key Pulsing . . . . .	<i>Allison</i>	53

## L

Laboratories		
High-Speed Camera Laboratory . . . . .		412
Research		
Electron Tube Research Laboratory at Murray Hill . . . . .		262
Science		
Jewett Laboratories dedicated at Rockford College . . . . .		556
Testing		
Vibration-Proof Chimney Lab . . . . .		86
Laboratories in Monmouth County . . . . .	<i>Findley</i>	97
Laboratories Men Visit Europe . . . . .		172
Labs Officers to Aid Air Force . . . . .		370
Lamps, Switchboard		
Little Things of Great Importance . . . . .		132
Lecture Aid No. 14		
Portable Public Address System for Lectures . . . . .		497
Legion Post Installation (Post 497) . . . . .		380
Lepeth Sheath see Cables. Sheaths and Sheath Losses		
Life Tests		
Coin Collectors (Cover of July issue of RECORD) . . . . .		297
Lightning		
Impulse Generator for Lightning Studies . . . . .	<i>Mahoney</i>	107
Line-of-Sight Relay Systems—Old and New . . . . .	<i>Espenschied</i>	162
"Listening Room" see Arnold Auditorium		
Long Haul Radio Relay . . . . .		29
Loudspeakers, 755A		
Portable Public Address System for Lecturers . . . . .		497

## M

Machines		
Machine for Winding Helices on Ceramics . . . . .		306
Milling Machine at Whippany Radio Laboratory (Picture) . . . . .		232
Maintenance Facilities for the No. 5 Crossbar System . . . . .	<i>Williford</i>	313
Making Unseen Stresses Visible . . . . .		536
Maps		
Bell System Television Network Routes (Map) . . . . .		226
March to Higher Frequencies . . . . .		129
Markers		
Equipment Arrangements for No. 5 Crossbar Markers . . . . .	<i>Graupner</i>	397
No. 5 Crossbar Marker . . . . .	<i>Adam</i>	502
Sender Link Frames for No. 5 Crossbar . . . . .	<i>Swift</i>	258
Trunk Selection by No. 5 Crossbar Markers . . . . .	<i>Erwin</i>	357
Maxwell Bridge for Measuring Loading Coils . . . . .	<i>Willhelm</i>	453
Megatherm (Picture) . . . . .		83
Memorial Service in Tokyo for Dr. Jewett . . . . .		61
"Memory" Board		
Bell System Important to Air Defense . . . . .		316

Message Register Operation in No. 5 Crossbar . . . . .	<i>Low</i> . . . . .	404
Meters		
Phase Measurements for L Carrier Components . . . . .	<i>Alsberg</i> . . . . .	307
Mobile Service		
Mobile Service Helps Newspaper after Cable Break . . . . .		32
Modified Tape Armor and Lepeth Sheath Cable . . . . .	<i>Royal</i> . . . . .	241
Modulation, "Double-Sideband"		
N-1 Carrier System Goes into Service . . . . .		537
Modulators		
Ten Years' Service Justifies Designers' Confidence . . . . .		161
Monmouth County Company Properties		
Laboratories in Monmouth County . . . . .	<i>Findley</i> . . . . .	97
Monohydrates of EDT		
Case of the Barnacled Crystal . . . . .	<i>Kohman</i> . . . . .	13
Montgomery Visits Murray Hill . . . . .		28
Mountings for Equipment		
Three-Bay Cabinet for Laboratory and Shop . . . . .	<i>Harazim</i> . . . . .	458
Mu-Beta Effect Chart for Feedback . . . . .		206
Multifrequency Power Supply for Reed Signaling . . . . .	<i>Pruden</i> . . . . .	112
Multiple Close-Spaced Channels for Mobile Radio . . . . .	<i>Peterson</i> . . . . .	153
Multivibrators		
Tuned Plate Multivibrator . . . . .	<i>Johanson</i> . . . . .	208
Murray Hill		
Concourse Display of the Laboratories' Work at Murray Hill (Picture) . . . . .		322
Electron Tube Research Laboratory at Murray Hill . . . . .		262
Murray Hill Auditorium as a Listening Room . . . . .	<i>Cooke</i> . . . . .	16
Murray Hill Restaurant (Pictures) . . . . .		190
Patent Department at Murray Hill (Series of Pictures) . . . . .		80
Views of the Medical Department at Murray Hill . . . . .		176
Murray Hill Auditorium as a Listening Room . . . . .	<i>Cooke</i> . . . . .	16
Museum Displays . . . . .		175

## N

N-1 Carrier System Goes into Service . . . . .		537
Network to Represent the Inner Ear . . . . .	<i>Bogert</i> . . . . .	481
New Duct-Type Bay for Toll Transmission Equipment . . . . .	<i>Haury</i> . . . . .	202
New 482A Patching Jack . . . . .		542
New Impedance Bridge Measures Small Resistance Increments . . . . .		403
N. J. Bell Executives and Supervisor's Visit Murray Hill (Pictures) . . . . .		319
New Long Distance Center Opened in Boston . . . . .		30
New Microwave Radio Demonstration Set . . . . .		31
New Spraying Area at West Street (Picture) . . . . .		237
Noise Measurements		
Background Noise in Transistors . . . . .	<i>Montgomery</i> . . . . .	400
Novel Accelerometer . . . . .	<i>Ketchledge</i> . . . . .	529
No. 5 Crossbar Marker . . . . .	<i>Adam</i> . . . . .	502
Number Group Frame for No. 5 Crossbar . . . . .	<i>Morzenti</i> . . . . .	298

## O

Obituaries		
Douglas, Mary A., 1885-1950 . . . . .		422
Jehle, A. O., 1894-1950 . . . . .		131
Johnston, John, Dies . . . . .		511
McBerty, Frank R., 1868-1950 . . . . .		178
Nicolson, Alexander McLean, 1880-1950 . . . . .	<i>Heising</i> . . . . .	221

Oklahomans Visit Murray Hill . . . . .		514
Operator Connections in No. 5 Crossbar . . . . .	<i>Curley</i>	199
Optical Measurements of Residual Stresses in Glass Bulbs . . . . .	<i>Read</i>	62
Optimum Coaxial Lines . . . . .	<i>Smith</i>	498
Originating Dial Pulse Register Circuit for the Crossbar System No. 5 . . . . .	<i>Dehn</i>	7
Oscillators		
Automatic Transmission Measuring Set . . . . .	<i>Hudack</i>	538
Precise Decade Oscillator . . . . .	<i>Young</i>	487
Variable-Frequency Oscillator Stabilized to High Precision . . . . .	<i>Koerner</i>	66
Oscillographs		
Cathode-Ray Rapid-Record Oscillograph . . . . .	<i>Hibbard</i>	438
Overlook Hospital to Expand Its Facilities . . . . .		178

## P

Patent Department		
The New York Quarters of the Patent Department . . . . .		320
Patent Department at Murray Hill (Series of Pictures) . . . . .		80
Patents		
Voluminous Patent . . . . .		515
Paz, Dr. Gainza, from Buenos Aires Visits Laboratories . . . . .		33
Pentagon Building		
Telephone Service for the Pentagon Building . . . . .		356
Permanent Signals in No. 5 Crossbar . . . . .	<i>Michal</i>	461
Personnel		
Best, George L., Heads New A T & T Department . . . . .		128
Bransford, J. R., Succeeds Best . . . . .		128
Changes in Organization: H. W. Gillette, H. D. Wilson . . . . .		562
Cousins, Samuel B., New Head of Staff Departments . . . . .		365
Cowan, F. A., A T & T, Named Engineering Head for Long Lines . . . . .		82
Crump, James L., New President for Southwestern Bell Company . . . . .		220
Kappel, Fred R., Has Been Elected a Director of the Laboratories . . . . .		77
Killingsworth, H. T., Heads Long Lines . . . . .		31
Labs Officers to Aid Air Force . . . . .		370
Lack, F. R., Heads Electronics Mobilization Group . . . . .		467
Schumacher, E. E., Visits Europe . . . . .		559
Selby, G. T., Appointed Comptroller . . . . .		172
Shea, T. E., Becomes Personnel Director of W. E. Co. . . . .		128
Dr. Shockley Visits Korea . . . . .		559
Dr. Tradup Visits Korea . . . . .		511
Young, Burton R., Kearny Comptroller, to Succeed William Fondiller . . . . .		557
Phase Distortion		
An Integraph for Semi-Curvilinear Coordinate Paper . . . . .	<i>Marshall</i>	50
Phase Measurements for L Carrier Components . . . . .	<i>Alsberg</i>	307
Photoconductivity		
Phototransistor . . . . .	<i>Shive</i>	337
Photographing Sound Waves . . . . .		304
Phototransistors		
Phototransistor (Press Release) . . . . .		220
Phototransistor . . . . .	<i>Shive</i>	337
Plastic Covers for Switchboard Cable . . . . .	<i>Brobst</i>	289
Poles		
Experts Inspect Poles at Gulfport . . . . .		467
Termites and Their Control in Telephone Poles . . . . .	<i>Amadon</i>	348
Portable Public Address System for Lecturers . . . . .		497
Precise Decade Oscillator . . . . .	<i>Young</i>	487
Pretranslation in No. 5 Crossbar . . . . .	<i>Acery</i>	156
Private Branch Exchanges		
Pictures of Rearranging of PBX Board at West Street . . . . .		240

Public Address Systems for Lecturers . . . . .	497
Pulse Conversion in No. 5 Crossbar . . . . .	<i>Michael</i> . . . 533
Pulsing	
Combined Key Set for D-C and Multifrequency Key Pulsing . . . . .	<i>Allison</i> . . . . 53
Pulse Conversion in No. 5 Crossbar . . . . .	<i>Michael</i> . . . . 533

## R

Radiation Patterns of Telephone Instruments . . . . .	372
Radio	
Disturbances	
Historic Firsts: Sun Spots and Radio . . . . .	252
Relay Systems	
New York-Washington Radio Relay . . . . .	133
Summer's Work on the Desert . . . . .	<i>Kaylor</i> . . . . 366
Microwave	
Conductivity Measurements at Microwave Frequencies . . . . .	<i>Beck</i> . . . . 433
Long Haul Radio Relay (TD-2 and TD-X) . . . . .	29
Microwave Notes (TD-2) . . . . .	514
New Microwave Radio Demonstration Set . . . . .	31
Picture Showing Microwave Transmitter Controls at North Bend, Nebraska . . . . .	33
TD-2 Radio Relay System . . . . .	<i>Clutts</i> . . . . 442
Stations	
Pacific Company Radio Assists in Hospital Ship Rescue Work . . . . .	469
Towers	
Whippany Tower Used for Transmission Engineering Tests . . . . .	381
Transmitters	
March to Higher Frequencies . . . . .	129
Microwave Transmitter Controls at North Bend, Nebraska . . . . .	33
Radioactive Isotopes in Timber Preservation Studies . . . . .	249
Radiotelephone	
Circuits	
New Radio Link to Israel . . . . .	226
Mobile Service	
Mobile Service Helps Newspaper after Cable Break . . . . .	32
Multifrequency Power Supply for Reed Signaling . . . . .	<i>Pruden</i> . . . . 112
Multiple Close-Spaced Channels for Mobile Radio . . . . .	<i>Peterson</i> . . . . 153
Vibrating Reed Selectors for Mobile Telephone Systems . . . . .	<i>Keller</i> . . . . . 2
Vibrating Reed Signaling for Mobile Radio . . . . .	<i>Hoth</i> . . . . . 72
Service	
Four Winds, Seven Seas and the Telephone . . . . .	87
Ship-to-Shore	
Renovated <i>Gripsholm</i> Has Radiotelephone Service . . . . .	223
Ship-Shore Radiophone Popular . . . . .	137
Receivers	
Sampling a Sound in an Ear . . . . .	347
Recent Improvements in the Telephone Clock . . . . .	<i>Melsheimer</i> . . . 494
Recorders, Trouble	
Automatic Monitor . . . . .	<i>Brubaker</i> . . . . 343
Maintenance Facilities for the No. 5 Crossbar System . . . . .	<i>Williford</i> . . . . 313
Trouble Recording for the No. 5 Crossbar System . . . . .	<i>Mehring</i> . . . . 214
Reeds, Tuned Vibrating, for Mobile Telephone Systems . . . . .	<i>Keller</i> . . . . . 2
Register and Sender Testing in No. 5 Crossbar . . . . .	<i>Scheer</i> . . . . 490
Register	
No. 5 Crossbar Marker . . . . .	<i>Adam</i> . . . . . 502
Originating Dial Pulse Register Circuit for the Crossbar System No. 5 . . . . .	<i>Dehn</i> . . . . . 7
Traffic Registers for No. 5 Crossbar (14-Type) . . . . .	<i>Wagenseil</i> . . . 545

Relay Systems		
Line-of-Sight Relay Systems—Old and New . . . . .	<i>Espenschied.</i>	162
Relays		
Connectors for the No. 5 Crossbar System . . . . .	<i>Bishop</i> . . . . .	56
Originating Dial Pulse Register, Circuit for the Crossbar System No. 5 . . . . .	<i>Dehn</i> . . . . .	7
Repeater Stations		
Coaxial's New Alarm and Control System . . . . .	<i>Weber</i> . . . . .	122
TD-2 Repeater Station at New Holland, Pa. (Picture) . . . . .		29
Repeaters, Electronic		
Novel Accelerometer . . . . .	<i>Ketchledge</i> . . . . .	529
Resistors, Borocarbon . . . . .		447
Retirement		
How Not To Be Bored . . . . .	<i>McKeown</i> . . . . .	564
Ringing Selection in No. 5 Crossbar . . . . .	<i>Goddard</i> . . . . .	168

## S

Sampling a Sound In an Ear . . . . .		347
Sealing Solder . . . . .	<i>Phipps</i> . . . . .	295
Selectors, 60-Type		
Vibrating Reed Selectors for Mobile Telephone Systems . . . . .	<i>Keller</i> . . . . .	2
Semiconductors		
Phototransistor . . . . .	<i>Shive</i> . . . . .	337
Sender Link Frames for No. 5 Crossbar . . . . .	<i>Swift</i> . . . . .	258
Sequentially Operated Teletypewriter		
Universal Selector see "Sotus"		
Shock Measuring Devices see Accelerometers		
Signaling		
Equipment Features of the Cable Carrier System . . . . .	<i>Wier</i> . . . . .	22
Multifrequency Power Supply for Reed Signaling . . . . .	<i>Pruden</i> . . . . .	112
Vibrating Reed Signaling for Mobile Radio . . . . .	<i>Hoth</i> . . . . .	72
Signals, Permanent, in No. 5 Crossbar . . . . .	<i>Michal</i> . . . . .	461
"Smith Chart" see Charts (Transmission Line Chart)		
Solder and Soldering		
Sealing Solder . . . . .	<i>Phipps</i> . . . . .	295
"Sotus"		
81-C-1 Teletypewriter Switching System . . . . .	<i>Bacon</i> . . . . .	145
Sound		
Pressure Measurements		
Sampling a Sound In an Ear . . . . .		347
Radiation		
Photographing Sound Waves . . . . .		304
Radiation Patterns of Telephone Instruments . . . . .		372
Systems		
Murray Hill Auditorium as a Listening Room . . . . .	<i>Cooke</i> . . . . .	16
Visible		
Frog and Toad Calls Recorded . . . . .		417
Waves		
Photographing Sound Waves . . . . .		304
Sound Projector and Film Turntables Illustrated . . . . .		44
Spectroscopes and Spectroscopy		
Cathode Ray Sound Spectroscope . . . . .	<i>Davis</i> . . . . .	263
Spray Booths see Finishes		
Static		
Thunder in the South . . . . .		409
Stress and Strain		
Making Unseen Stresses Visible . . . . .		536
Optical Measurements of Residual Stresses in Glass Bulbs . . . . .	<i>Read</i> . . . . .	62

“String Saw” see Crystals. Cutting	
Submarine Cable Links Key West—Havana . . . . .	269
Summer’s Work on the Desert . . . . .	<i>Kaylor</i> . . . 366
Sun Spots	
Historic Firsts: Sun Spots and Radio . . . . .	252
Switching	
Connectors for the No. 5 Crossbar System . . . . .	<i>Bishop</i> . . . 56
81-C-1 Teletypewriter Switching System . . . . .	<i>Bacon</i> . . . 145
Incoming Register Circuits for No. 5 Crossbar . . . . .	<i>McAlpine</i> . . . 104
Incoming Register Link for No. 5 Crossbar . . . . .	<i>Koechling</i> . . . 115
Number Group Frame for No. 5 Crossbar . . . . .	<i>Morzenti</i> . . . 298
Pretranslation in No. 5 Crossbar . . . . .	<i>Avery</i> . . . 156

## T

TD-2 Radio Relay System . . . . .	<i>Clutts</i> . . . 442
TD-2 Repeater Amplifier Bay (Picture of Transmission Test) . . . . .	465
TV Signals “Bounced” Over Hill by “Mirror” . . . . .	270
Tantalum Electrolytic Capacitors . . . . .	<i>Whitehead</i> . . . 448
Tape, Magnetic	
Insulation by Cataphoresis . . . . .	<i>Gould</i> . . . 292
Taxes	
A T & T Gives Views on Telephone Taxes . . . . .	78
Telegraph Systems, Carrier—43A1	
43A1 Carrier Telegraph System Being Tested (Picture) . . . . .	511
Telephone	
History	
Angus B. Hibbard—Pioneer Telephone Executive and Inventor . . . . .	<i>Hill</i> . . . . 390
Iran	
Overseas Telephone Service . . . . .	85
Service	
Exhibit Shows Laboratories Developments for Telephone Service . . . . .	274
Overseas Telephone Service to Iran Opened . . . . .	85
Pacific Company Radio Assists in Hospital Ship Rescue Work . . . . .	469
Statistics	
Telephones in the World . . . . .	71
Systems	
Carrier	
Coaxial’s New Alarm and Control System (Type L) . . . . .	<i>Weber</i> . . . 122
Equipment Features of the Cable Carrier System (Type K) . . . . .	<i>Wier</i> . . . 22
N-1 Carrier System Goes Into Service . . . . .	537
Ten Years’ Service Justifies Designers’ Confidence . . . . .	161
Dial—Crossbar No. 5	
Automatic Monitor . . . . .	<i>Brubaker</i> . . . 343
Connectors for the No. 5 Crossbar System . . . . .	<i>Bishop</i> . . . 56
Design Patterns for No. 5 Crossbar . . . . .	<i>Ferguson</i> . . . 245
Equipment Arrangements for No. 5 Crossbar Markers . . . . .	<i>Graupner</i> . . . 397
Incoming Register Circuits for No. 5 Crossbar . . . . .	<i>McAlpine</i> . . . 104
Incoming Register Link for No. 5 Crossbar . . . . .	<i>Koechling</i> . . . 115
Maintenance Facilities for the No. 5 Crossbar System . . . . .	<i>Williford</i> . . . 313
Message Register Operation in No. 5 Crossbar . . . . .	<i>Low</i> . . . 404
No. 5 Crossbar Marker . . . . .	<i>Adam</i> . . . 502
Number Group Frame for No. 5 Crossbar . . . . .	<i>Morzenti</i> . . . 298
Operator Connections in No. 5 Crossbar . . . . .	<i>Curley</i> . . . 199
Originating Dial Pulse Register Circuit for the Crossbar System No. 5 . . . . .	<i>Dehn</i> . . . 7
Permanent Signals in No. 5 Crossbar . . . . .	<i>Michal</i> . . . 461
Pretranslation in No. 5 Crossbar . . . . .	<i>Avery</i> . . . 156
Pulse Conversion in No. 5 Crossbar . . . . .	<i>Michael</i> . . . 533

Telephone (Continued)

Systems

Dial

Register and Sender Testing in No. 5 Crossbar . . . . .	<i>Scheer</i> . . . . .	490
Ringing Selection in No. 5 Crossbar . . . . .	<i>Goddard</i> . . . . .	168
Sender Link Frames for No. 5 Crossbar . . . . .	<i>Swift</i> . . . . .	258
Traffic Registers for No. 5 Crossbar . . . . .	<i>Wagenseil</i> . . . . .	545
Trouble Recording for the No. 5 Crossbar System . . . . .	<i>Mehring</i> . . . . .	214
Trunk Selection by No. 5 Crossbar Markers . . . . .	<i>Erwin</i> . . . . .	357

Toll

New Duct-Type Bay for Toll Transmission Equipment . . . . .	<i>Haury</i> . . . . .	202
New Long Distance Center Opened in Boston . . . . .		30

Telephone Pioneers of America

Frederick Johnson Elected President of Pioneers . . . . .		318
M. J. Kelly Elected Pioneer President (of Frank B. Jewett Chapter) . . . . .		280
News of the Telephone Pioneers . . . . .	419,	512
1950 General Pioneer Meeting . . . . .		513
Telephone Service Continued to Improve in 1949 . . . . .		76

Telephone Service for the Pentagon Building . . . . .		356
---	--	-----

Teletypewriter Systems, 81-C-1

Automatic Teletypewriter Switching System for Ford . . . . .		399
Bell Laboratories Served by Western's New Teletypewriter Switching Network . . . . .		20
81-C-1 Teletypewriter Switching System . . . . .	<i>Bacon</i> . . . . .	145

Television

Apparatus and Equipment

New York Telephone Company's New Television Pick-Up Truck (Picture) . . . . .		30
---	--	----

Networks

Operating Control Position for Television Networks (Picture) . . . . .		78
--	--	----

Rates

Bell System Rates for TV Network Service . . . . .		460
--	--	-----

Systems, Color

Color Television . . . . .		370
----------------------------	--	-----

Transmission

Bell System Television Network Routes (Map) . . . . .		226
Monitoring Equipment (Picture) . . . . .		119
TV Signals "Bounced" Over Hill by "Mirror" . . . . .		270
Video Monitoring Probe . . . . .		548

Television Network Expansion . . . . .		6
--	--	---

Ten Years' Service Justifies Designers' Confidence . . . . .		161
--	--	-----

Termites

Termites and Their Control in Telephone Poles . . . . .	<i>Amadon</i> . . . . .	348
---	-------------------------	-----

Test Sets, Photoelastic

Making Unseen Stresses Visible . . . . .		536
--	--	-----

Testing

Register and Sender Testing in No. 5 Crossbar . . . . .	<i>Scheer</i> . . . . .	490
---	-------------------------	-----

Thermistors, D-177232 Bead

Thermistor Aids in Measuring Humidity . . . . .		15
Thimann, Dr., at Murray Hill . . . . .		79

Thomson, J. J., Volumes Now in Library . . . . .		413
--	--	-----

Three-Bay Cabinet for Laboratory and Shop . . . . .	<i>Harazin</i> . . . . .	458
---	--------------------------	-----

Three-Dimensional Traffic Chart . . . . .		395
---	--	-----

Thunderstorms

Thunder in the South . . . . .		409
--------------------------------	--	-----

Traffic Registers for No. 5 Crossbar . . . . .	<i>Wagenseil</i> . . . . .	545
--	----------------------------	-----

Transistors

Background Noise in Transistors . . . . .	<i>Montgomery</i> . . . . .	400
Cover of September Issue of RECORD Shows Apparatus for Transistor Studies . . . . .		394

Transmission		
Equipment		
New Duct-Type Bay for Toll Transmission Equipment . . . . .	<i>Haury</i> . . . . .	202
Lines, Coaxial		
Optimum Coaxial Lines . . . . .	<i>Smith</i> . . . . .	498
Measurements		
Automatic Frequency Control for Heterodyne Measurements . . . . .	<i>Leed</i> . . . . .	352
Automatic Transmission Measuring Set . . . . .	<i>Hudack</i> . . . . .	538
Phase Measurements for L Carrier Components . . . . .	<i>Alsberg</i> . . . . .	307
Tests		
Over-All Transmission Tests on a TD-2 Repeater Amplifier Bay (Picture) . . . . .		465
Transmission Line Chart . . . . .		75
Treasury Department at West Street (Picture) . . . . .		323
Trends in Electronic Components and Assemblies (Talk by E. I. Green) . . . . .		559
Trouble Record Cards see Recorders, Trouble		
Trouble Recording for the No. 5 Crossbar System . . . . .	<i>Mehring</i> . . . . .	214
Trucks		
New York Telephone Company's New Television Pick-Up Truck (Picture) . . . . .		30
Trunk Selection by No. 5 Crossbar Markers . . . . .	<i>Erwin</i> . . . . .	357
Trunking		
Operator Connections in No. 5 Crossbar . . . . .	<i>Curley</i> . . . . .	199
Tuned Plate Multivibrator . . . . .	<i>Johanson</i> . . . . .	208

**V**

Vacuum Tubes		
Machine for Winding Helices on Ceramics . . . . .		306
404A and 6AK5		
Fine-Wire Type Vacuum Tube Grids . . . . .	<i>Walsh</i> . . . . .	165
Variable-Frequency Oscillator Stabilized to High Precision . . . . .	<i>Koerner</i> . . . . .	66
Vibrating Reed Selectors for Mobile Telephone Systems . . . . .	<i>Keller</i> . . . . .	2
Vibrating Reed Signaling for Mobile Radio . . . . .	<i>Hotk</i> . . . . .	72
Vibrations, Audio Frequency		
Network to Represent the Inner Ear . . . . .	<i>Bogert</i> . . . . .	481
Video Monitoring Probe . . . . .		548
Vistanex		
Plastic Covers for Switchboard Cable . . . . .	<i>Brobst</i> . . . . .	289
Vocal Organs		
Electrical Vocal System . . . . .	<i>Schott</i> . . . . .	549

**W**

Water Level Soundings at West Street . . . . .		142
Wave Guides		
Optimum Coaxial Lines . . . . .	<i>Smith</i> . . . . .	498
Single-Wire Wave Guide . . . . .		182
Wood Preservation		
Experts Inspect Poles at Gulfport . . . . .		467
Radioactive Isotopes in Timber Preservation Studies . . . . .		249
Termites and Their Control in Telephone Poles . . . . .	<i>Amadon</i> . . . . .	348