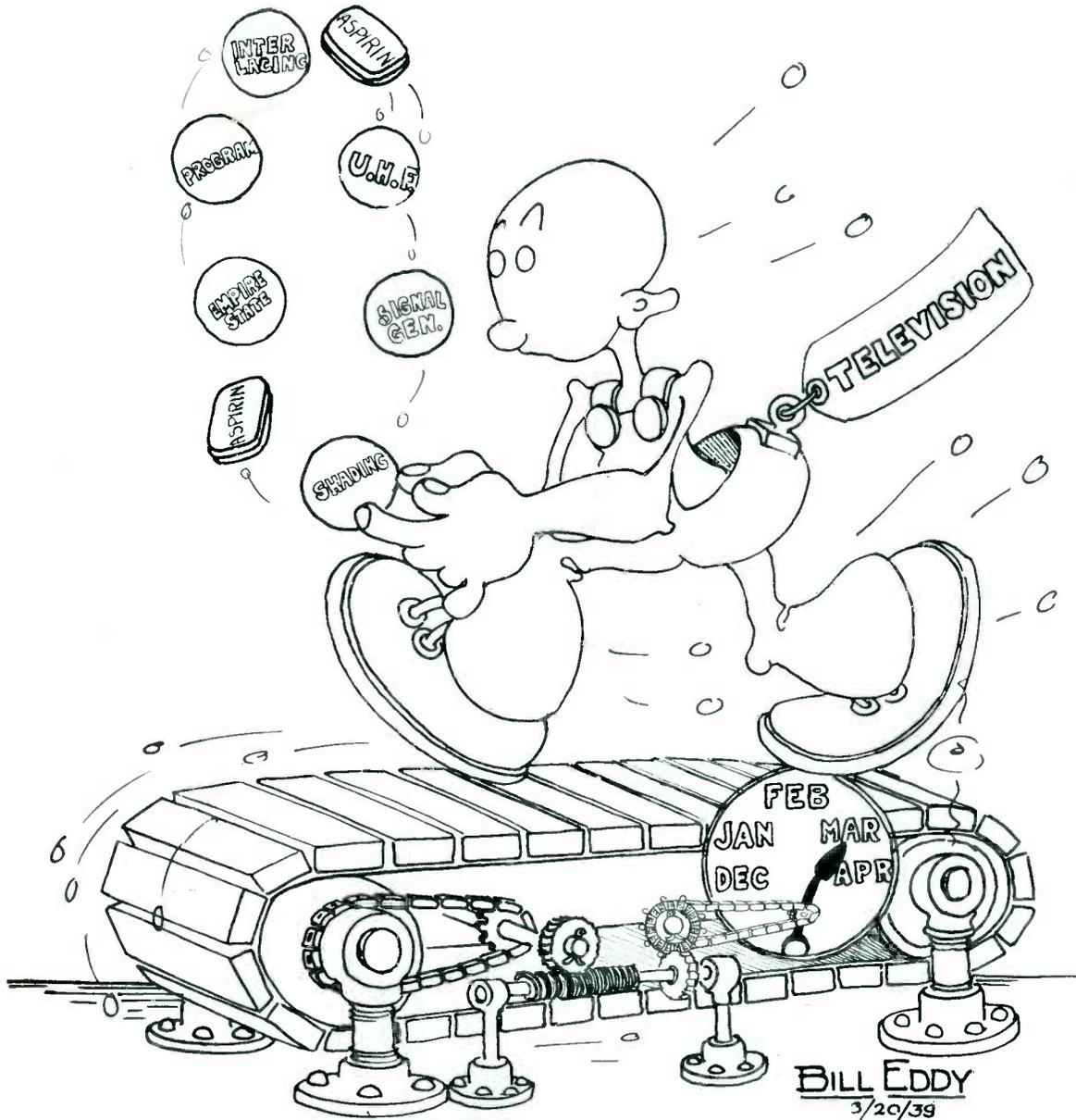


APRIL

1939

INTERNAL



BILL EDDY
3/20/39

"Something's Got to Happen Soon"

Television Edition



From New York to Hollywood

NBC *is* BROADCASTING HEADQUARTERS

AMERICA rates artists on a basis of what they do in New York, Hollywood, Chicago and in the other great entertainment centers of the nation. In each of these centers, NBC is Broadcasting Headquarters, maintaining leadership in programs by giving "Fame" a steady job on both the Red and Blue Networks.

Station Standing Means Greater Audience for FAME!

There are today 166 radio stations affiliated with the Blue and Red Networks. All across the country you find NBC stations enjoying wide popularity in their areas.

Leadership in Program Planning Means More Opportunities for FAME!

Throughout 12 years, the style in programs has been set by NBC. Many of the most important types of programs now broadcast were first conceived and put on the air by NBC.

Leadership in Artists' Service Means Better Management for FAME!

One of the great talent organizations of the world is the NBC Artists' Service. As a divi-

sion of NBC, this Service provides artists with personal management and valuable guidance. It sees to it that "Fame" has a wealth of appearances.

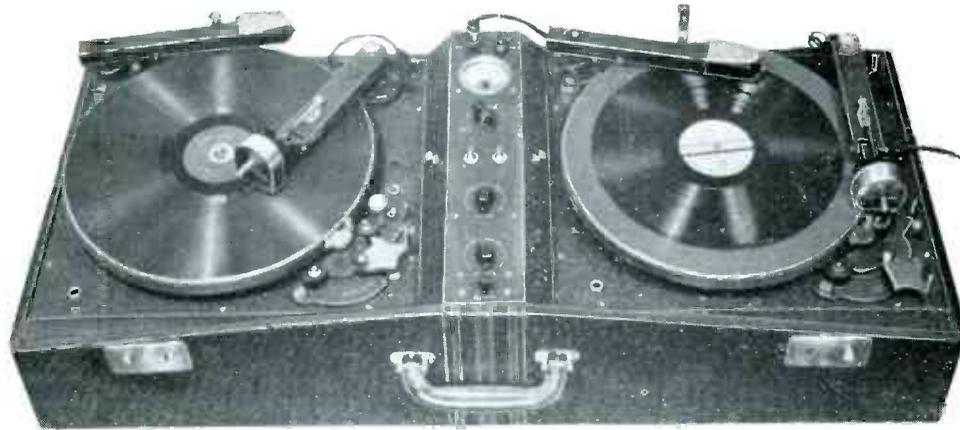
"In the Public Interest"

At all times the National Broadcasting Company operates its networks in the interest of the listener. The public appreciation of this policy insures a great and friendly audience for "Fame."

NATIONAL BROADCASTING COMPANY

THE WORLD'S GREATEST BROADCASTING SYSTEM

A RADIO CORPORATION OF AMERICA SERVICE



Record your remote pickups with this new PRESTO recorder

SCORES of leading broadcasting stations are now recording their man-on-the-street programs, descriptions of local news events and interviews with celebrities at airports, hotels, offices, golf clubs or baseball parks.

By using the Presto Recorder, they can get to the scene of events on a moment's notice . . . avoid the uncertainties of short wave transmission . . . and broadcast their special programs without disturbing the program schedule.

These special broadcasts have become so important that many stations have asked us to design a light-weight Recorder combining all the features re-

quired for this work. Here it is. The new Presto Model M Recorder enables you to make high quality 12" records continuously, without interruption. The original records may be put on the air, or the best features of each may be dubbed onto a 16" transcription. The Model M consists of two dual-speed 12" recording turntables, a recording amplifier and two-microphone mixer—all mounted in a single carrying case which measures 10" x 15" x 35" and weighs only 62 pounds. For field work it may be operated from storage batteries using a 120 watt, 12 V DC to 110 V 60 cycle AC converter.

Write today for bulletin giving complete technical description.

PRESTO RECORDING CORPORATION
242 West 55th Street New York, N. Y.

The New DAVEN Type No. 910

POWER LEVEL INDICATOR



SPECIFICATIONS

- ★ INPUT IMPEDANCE: 7500 ohms constant on all steps of meter range switch except on the 1 mw. calibration step.
- ★ POWER LEVEL RANGES: Standard 1 mw. at 600 ohms reference. See table below.
- ★ FREQUENCY RANGE: Less than 0.2 Db. variation up to 10,000 cycles.
- ★ SCALE READING: Meter calibrated -20 to +3 Db. and 0 to 100%. Type "A" Scale, for broadcasting work is marked in percent on the upper scale.
- ★ INDICATING METER: Copper-oxide-type adjusted for deliberate pointer action. Large clearly marked scale.
- ★ METER RANGE CONTROL: Heavy duty "T" network. Input impedance 7500 ohms; Output impedance 3900 ohms. Attenuation variable in steps of 2 Db.
- ★ METER ADJUSTMENT CONTROL: Miniature step-by-step decade type unit. Designed for fine adjustment of the zero level reading over a range of ± 0.5 Db.
- ★ TERMINALS: Screw type lugs.
- ★ MOUNTING: Standard relay rack mounting Panel $5\frac{1}{4}$ x 19".
- ★ FINISH: Black aluminite, dull satin finish; R. C. A. or W. E. gray.
- ★ NET WEIGHT: $3\frac{1}{2}$ lbs.

Units calibrated 6 mw. across 500 ohms available upon request. NOTE: Unless otherwise specified, meter range controls will be supplied turning counter-clockwise for decreasing attenuation.

TYPE NO.	RANGE	ZERO LEVEL	SCALE	PRICE
910-A	1 mw. 4 to 40 Db.	off 1 mw. 600 Ohms	A	\$65.00
910-B	1 mw. 4 to 40 Db.	off 1 mw. 600 Ohms	B	65.00
910-C	1 mw. 4 to 24 Db.	off 1 mw. 600 Ohms	A	60.00
910-D	1 mw. 4 to 24 Db.	off 1 mw. 600 Ohms	B	60.00

It is designed to indicate audio levels in broadcasting, sound recording and allied fields where precise monitoring is important. The type 910 unit is completely self-contained, requiring no batteries or external power supply. The indicator is sensitive to low power levels, rugged and dependable.

The new WESTON Type 30 meter used with this unit is a copper-oxide type instrument possessing nearly ideal characteristics for monitoring purposes. The adjustment is such that the pointer will indicate 99% normal deflection at zero Db. in approximately 0.3 seconds. Over-swing is not more than 1 to 1½%. The meter scale is calibrated in decibels and percent. It is large, clearly marked and carefully designed to minimize eye fatigue.

Two meter controls are provided, one small decade with screw-driver adjustment for zero level setting of the meter pointer; the other a constant impedance "T" type network for extending the range of the instrument in steps of 2 Db.

Because of the length of the meter scale, small differences in pointer indications are easily noticed. For this reason the screw-driver type vernier is provided. All V. I. meters can thus be adjusted to the same scale reading. This is particularly convenient in complex installations where several V. I. meters must be read by one operator, or in coordinating the various meters at different points in a network.

158 SUMMIT STREET

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NEWARK, NEW JERSEY

MANUFACTURERS OF SINGLE & DUAL POTENTIOMETERS, SPECIAL ROTARY SWITCHES, FILAMENT RHEOSTATS, MIXER PANELS, VARIABLE & FIXED ATTENUATORS, FADERS, RF SWITCHES, VOLUME INDICATORS, OUTPUT METERS, LINE EQUALIZERS, ATTENUATION BOXES, MULTIPLIERS, SUPER DAVOHMS, LABORATORY EQUIPMENT, SPEECH INPUT CONTROL APPARATUS, DECADE RESISTANCES, RESISTANCES, DAVOHMS, GAIN SETS, AND OUTPUT POWER METERS.

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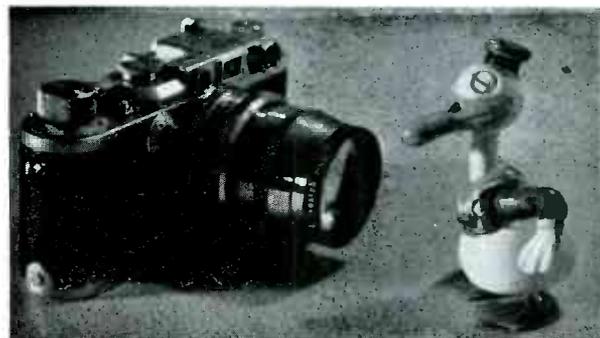
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**A Radio Man's Hobby
 may be Radio**

That is . . . to a certain extent . . . You know, of course that we are a radio store . . . catering to the needs of radio men . . . to you, yourself. But let's not go into that. What we really want to say is that another hobby has really gripped the boys.

CAMERA



. . . The old store doesn't look the same any more since Radio men have adopted this popular indoor and outdoor hobby that is sweeping the country.

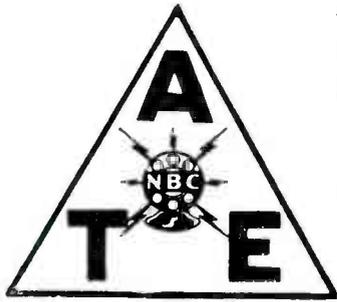
. . . We're no snobs . . . and we're in business to serve our thousands of radio customers . . . If you want CAMERAS . . . by gum, we'll sell you CAMERAS . . . We've got 'em in our new Camera Department . . . plenty of 'em . . . all kinds of 'em . . . accessories, too . . .

Come in and join the party . . . we're ready to talk "trade-in" on CAMERA or RADIO.

OUR *Best* VALUE IS OUR RECORD OF LOYAL SERVICE

HARVEY
Radio Company of New York

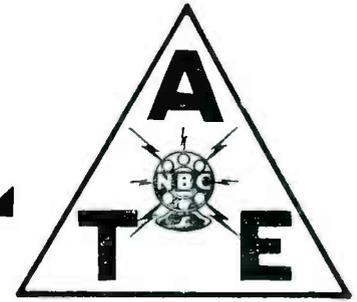
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JOURNAL



VOLUME 6 ISSUE 4

APRIL 1939

The Radio Engineer's Opportunity In Television

By Donald G. Fink
Managing Editor, *Electronics*



The impact of television development on the radio engineering profession has been, up to the present, all too gentle. There are only 20 licensed television broadcasting plants, actually only three in the entire United States have announced plans for a definite public service in 1939, and the number of receiving-set manufacturers who are designing models for sale this year can be counted on ten fingers. In addition, there are three or four important patent-development laboratories who have under way definite programs of development in video engineering. But there the list ends. It is fair to say that there are fewer than 50 men in the entire profession who have a solid foundation in all branches of the television art. Perhaps 500 men have some specialized training in one branch, but admittedly could not hold down any job in the field that presented itself. This is a very small group, compared with the 500 members of the Institute of Radio Engineers, and the many thousands of qualified designers and operators who are not listed in the rolls of the I. R. E.

In this field, as in any other, the supply of engineers tends to approximate to the number demanded. There is, of course, a very persistent demand for the services of the all-around video engineer, one who can undertake the complete design of a television broadcasting set-up or who can put a line of television receivers in production. There probably always will be a demand for such men, just as there is now for top-notch radio-frequency or audio-frequency engineers. But all of us cannot be top-notchers. The important question, from the standpoint of the profession at large are: "What jobs are about to open up in the field of television?" and "What training or special qualifications are required to hold down these jobs?"

It is on these questions that the Editor of the ATE Journal has asked me to hazard a few opinions. The word "hazard" is used advisedly, for if there is one thing clear about the whole field of television, it is the hazardous outlook. A system of great technical excellence has been devised, thanks to the effect of much ingenuity and elbow grease, backed up by generous appropriations. Programs have been devised, many of them of

great intrinsic value, and they have been tried out on a select audience—an audience which by all indications wants more of the same thing. But television has never been tried out before the public in this country, nor for that matter in any country under the competitive conditions in view for American television broadcasting. The key to the whole riddle lies in the hands of that great unknown, the public. I have been fortunate in being able to talk with perhaps twenty of the leaders in television development, both in the technical and in the commercial departments. All these men agree that, at present, television is a gamble. If the public likes "transient visual images by radio" nothing can stop television. If the public doesn't like them, or is apathetic to the programs, then television will be, for the present, a failure. If this disaster should overtake us in the next year, it may take much patience, much money, and a great deal of technical excellence to woo back the public favor.

In view of this fundamental uncertainty concerning public acceptance of the new art, it is well to review the limitations which at present beset television broadcasting. These limitations have been widely discussed, and they may be familiar to all the readers of the Journal, but they are too important to be overlooked. In the first place, there is the limitation of high cost—high cost in transmitting equipment, in programming, and in receiving equipment. The high cost is in part due to the newness of the art. In part, too, it is inherent in the fact that two forms of intelligence transmission, sight and sound, are involved, rather than one. But fundamentally the limitation is based on the fact that the eye is our most critical organ of sense perception. By far the majority of our store of knowledge comes to us through our sense of vision, and that is true because the eye has extraordinary powers of perception. In the first place, the eye can see in two dimensions—it can cover an area, and can examine minutely the various details contained in that area. In the second place, the eye has no fewer than 18,000,000 separately sensitive photoelements contained in its retina. These photo-

Continued on page 26



TELEVISION

by R. E. Shelby

(NOTE: With all of the space being given to television in the daily papers and in the technical publications there is little doubt that all of us are beginning to wonder just what television is all about. Most of us would like to spend some time improving our education by reading and to aid in the selection of material Mr. R. S. Shelby, Engineer in Charge of Television Development, has prepared a choice list for reading covering: 1. "General Television"; 2. "U. H. F. Transmission," and 3. "Television Receivers."

Do not be frightened by this impressive listing of television reading because while you will find much new theory you will find many parallels to your own work. R. D. C.)

TELEVISION—GENERAL

1. "Television"—Volumes I and II. Compilations of various papers and monographs on the subject, published by the RCA Institutes Technical Press, 75 Varick Street, New York City. Papers in the following list designated by an asterisk are included in these volumes.
2. "The Electrical Transmission of Pictures and Images"—J. W. Horton. Proceedings of the IRE. September 1939, p 1540.
- *3. "A Study of Television Image Characteristics"—E. W. Engstrom. Proceedings of the IRE. December 1933, p 1631. Part II Proceedings of the IRE. April 1935, p 295.
- *4. "Description of an Experimental Television System and the Kinescope"—V. K. Sworykin. IRE. December 1933, p 1655.
- *5. "The Iconoscope—A Modern Version of the Electric Eye"—V. K. Sworykin. IRE. January 1934, p 16-22.
- *6. "Scanning Sequence and Repetition Rate of Television Image"—Kell, Bedford and Trainer. IRE. April 1936.
7. "A Theory of Scanning and Its Relation to the Characteristics of the Transmitter Signal in Telephotography and Television"—Mertz and Gray. Bell System Technical Journal. July 1934, p 464.
8. "Systems for Wide-Band Transmission over Coaxial Lines"—L. Espenschied and M. E. Striely. Bell System Technical Journal. October 1934, p 654.
- *9. "RCA Television Field Tests"—L. M. Clement and E. W. Engstrom. RCA Review. July 1936, p 32.
- *10. "Iconoscopes and Kinescopes in Television"—V. K. Sworykin. RCA Review. July 1936, p 60.
- *11. "Equipment Used in the Current RCA Television Field Tests"—R. R. Beal. RCA Review. January 1937, p 36.
- *12. "Experimental Studio Facilities for Television"—O. B. Hanson. RCA Review. April 1937, p 3.
- *13. "Television Studio Design"—R. M. Morris and R. E. Shelby. RCA Review. July 1937, p 14.
14. "The London Television Service"—T. C. MacNamara and D. C. Birkinshaw. Journal of IEE (Br). December 1938, p 729.
15. "The Morconi-EMI Television System"—A. D. Blumlein, C. O. Browne, N. E. Davis and E. Green. Journal of IEE (Br). December 1938, p 758.
16. "Analysis and Design of Video Amplifiers"—S. W. Seeley and C. N. Kimball. RCA Review. October 1937, p 171.
17. "Direct Viewing Type Cathode Ray Tube for Large Television Images"—I. G. Waloff. January 1938, p 289.
18. "The Monoscope"—C. E. Burnett. RCA Review. April 1934, p 414.
19. "Some Notes on Video Amplifier Design"—A. Prisman. RCA Review. April 1938, p 421.
20. "Figure of Merit for Television Performance"—A. V. Bedford. RCA Review. July 1938, p 36.
21. "Television in Great Britain"—Noel Ashbridge. Proceedings of the IRE. June 1937, p 69.
22. "The Brightness of Outdoor Scenes and Its Relation to Television Transmission"—Harley Iams and R. B. Janes. Proceedings of the IRE. August 1937, p 1034.
23. "Theory and Performance of the Iconoscope"—V. K. Sworykin, G. A. Morton, and L. E. Flory. Proceedings of the IRE. August 1937, p 1071.
24. "The Fine Structure of Television Images"—Harold A. Wheeler and Arthur V. Loughren. Proceedings of the IRE. May 1938, p 540.
25. "Analysis and Design of Video Amplifiers"—Part II—S. W. Seeley and C. N. Kimball. RCA Review. January 1939, p 271.
26. "RCA Standards on Television"—A. F. Murray Electronics. July 1938, p 28.
27. "Transmission of Motion Pictures Over a Coaxial Cable"—Herbert E. Ives. September 1938, p 256.
28. "Coaxial Cable System for Television Transmission"—M. E. Strisby. Bell System Technical Journal. July 1938, p 438.

ULTRA HIGH FREQUENCY TRANSMISSION

- *1. "A Study of the Propagation of Wavelengths Between Three and Eight Meters"—L. F. Jones. IRE. March 1933, p 349.
- *2. "Notes on Propagation of Waves Below Ten Meters in Length"—Bertram Trevor and P. S. Carter. IRE. March 1933, p 387.
3. "Ultra-Short-Wave Propagation"—J. S. Schelleng, C. R. Burrows and E. B. Ferrel. IRE. March 1933, p 427.
4. "Some Results of a Study of Ultra-Short-Wave Transmission Phenomena"—D. R. Englund, A. B. Crawford, and W. M. Mumford. IRE. March 1933, p 464.
5. "Some Details Relating to the Propagation of Very Short Waves"—R. Jonsust. IRE. March 1931, p 479.
6. "Ultra Short Radio Waves"—R. L. Smith, Rose and J. S. McPetrie, Wireless Engineer and Experimental Wireless (Br). January 1934, p 3.

7. "Transmission Lines for Short Wave Systems"—E. J. Sterba and C. B. Feldman. IRE. July 1932, pp 1163 and 1202.
8. "Resonant Lines in Radio Circuits"—F. E. Terman. Electrical Engineering. July 1934, pp 1046-1053.
9. "Ultra High Frequency Antenna Terminations—Using Concentric Lines"—W. C. Tinus. Electronics. August 1935, p 239.
10. "Development of Directive Transmitting Antennas by RCA Communications, Inc."—Carter, Hansell and Lindblad. IRE. October 1931, p 1773.
11. "Frequency Control by Low Power Factor Line Circuits"—C. W. Hansell and P. S. Carter. IRE. April 1936, p 597.
12. "Recent Developments of the Class B. Audio and Radio Frequency Amplifiers"—Loy E. Barton. Proceedings IRE. July 1936, p 985.
- *13. "Ultra High Frequency Transmission Between the RCA Building and the Empire State Building in New York City"—P. S. Carter and G. S. Wickizer. Proceedings of the IRE. August 1936, p 1082.
14. "Thermocouple Ammeters For Ultra-High Frequencies"—John H. Miller. Proceedings of the IRE. December 1936, p 1567.
15. "Television Radio Relay"—Bertram Trevor and O. E. Dow. RCA Review. October 1936, p 35.
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19. "Television Transmitters Operating at High Powers and Ultra-High Frequencies"—J. W. Conklin and H. E. Gihring. RCA Review. July 1937, p 30.
20. "Field Strength Observations of Trans-Atlantic, 40 to 45 Megacycles"—H. O. Peterson and D. R. Goddard. RCA Review. October 1937, p 161.
21. "The Requirements and Performances of a New Ultra-High Frequency Power Tube"—W. G. Wagener. RCA Review. October 1937, p 258.
22. "Review of UHF Vacuum Tube Problems"—B. J. Thompson. RCA Review. October 1938, p 156.
23. "A Survey of UHF Measurements"—L. S. Nergaard. RCA Review. October 1938, p 156.
24. "UHF Wave Propagation Over Plane Earth and Fresh Water"—R. C. Colwell and A. W. Friend. IRE. January 1937, p 32.
25. "Ultra Short Wave Propagation Along the Curved Earth's Surface"—Paul Van Handle and Wolfgang Pfister. IRE. March 1937, p 346.
26. "The Development Problems and Operating Characteristics of Two New Ultra High Frequencies"—Winfield G. Wagener. IRE. April 1938, p 401.
27. "Allocations in the UHF Spectrum"—Electronics. December 1937, p 35.
28. "A Unique Method of Modulation for High Fidelity Television Transmitters"—W. N. Parker. Proceedings of the IRE. August 1938, p 946.
29. "A Study of Ultra-High Frequency Wide-Band Propagation Characteristics"—R. W. George. Proceedings of the IRE. January 1939, p 28.
30. "Observations On Sky-Wave Transmission on Frequencies above 40 Megacycles"—D. R. Goddard. Proceedings of the IRE. January 1939, p 12.
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2. "Effect of Receiving Antenna On Television Reception Fidelity"—S. W. Seeley. RCA Review. April 1938, p 433.
3. "Aerial Coupling Systems for Television"—W. E. Benham, Wireless Engineer. October 1938, p 555.
4. "Screens for Television Tubes"—I. G. Maloff and D. W. Epstein. Electronics. November 1937, p 31.
5. "Distortion of Sawtooth Wave Forms"—Manfred von Ardenne. Electronics. November 1937, p 37.
6. "Television Receivers"—E. W. Engstrom and R. S. Holmes. Electronics. June 1938, p 20.
7. "Television I. F. Amplifiers"—E. W. Engstrom and R. S. Holmes. Electronics. June 1938, p 20.
8. "Television Video Amplifiers"—E. W. Engstrom and R. S. Holmes. Electronics. August 1938, p 18.
9. "Television Synchronization"—E. W. Engstrom and R. S. Holmes. Electronics. November 1938, p 18.
10. "Deflection Circuits in Television Receivers"—E. W. Engstrom and R. S. Holmes. Electronics. January 1939, p 19.
11. "Scophony's Latest System"—Television (Br). April 1937, p 196.
12. "Special Television Exhibition Report"—Television (Br). September 1938, p 521.
13. "Development of the Projection Kinescope"—V. K. Zworykin and W. H. Painter. Proceedings of IRE. August 1937, p 937.
14. "High Current Electron Gun for Projection Kinescope"—R. R. Law. Proceedings of IRE. August 1937, p 957.

ON THE CUFF

... EUGENE CONLEY, NBC tenor, is one of the foremost collectors of records made by the late Enrico Caruso to whom critics have likened him ... KAY KYSER'S "College of Musical Knowledge" may be the basis of a motion picture starring the entire cast ... MAREK WEBER, conductor of the Carnation Contented orchestra, is adding to his newly learned English vocabulary in a way that is also fun ... the maestro works every cross-word puzzle he can find ... FRANK MUNN, NBC Waltz Time tenor, says that the waltzes most frequently requested by listeners during the past year were "Liebestraum," "Always" and "I Wonder Who's Kissing Her Now" ... BETTY WRAGGE, of the NBC serial Pepper Young's Family, is an old time trooper at the age of 21 ... She started acting when only three years old ... MAESTRO PETER VAN STEEDEN of the Fred Allen and other NBC programs has his own private aquarium at his Westchester home and his band boys contribute to it ... WR. FRANK BLACK, General Music Director of NBC, will be interviewed on a forthcoming "ABC of NBC" program ... RUPERT LABELLE gets younger instead of older in his roles ... As a 12 year old boy, he made his stage debut in the character of Old Scrooge ... Now he's playing the part of middle aged Rufus on the Story of Mary Marlin ... FRED ALLEN says that by the time he works out his new contract in 1941, he will have written in "Town Hall" script the equivalent of some 200 plays ... WHITEY FORD, the Duke of Paducah on the NBC Plantation Party, tell about the hillbilly who was signed up for a stage appearance and paid his own way into the theatre. ...

G. E. Receives Television License



A TELEVISION transmitter, more powerful than any now in use in this country and designed to broadcast pictures with much improved picture definition, will be put into operation within the next three months by General Electric at Indian Ladder in the Helderberg Hills, 12 miles from Schenectady, N. Y. This announcement was made by Chester H. Lang, manager of broadcasting for General Electric, upon receipt of word from Washington that the Federal Communications Commission had granted the company a license to construct an experimental station.

Built on top of a 1500-foot hill with an antenna strung on 100-foot towers, this station will be at least 250 feet higher than the one atop the Empire State building in New York. To the south are higher hills which, with a directional antenna, will tend to prevent the signal from causing any possible interference with stations in New York City. With a power output of 10 kilowatts, its coverage will be the area comprising Schenectady, Albany, Troy, Amsterdam, and Saratoga, known as the Capitol District, with a combined population of more than 500,000.

The television studio will be located in Schenectady, in quarters occupied by WGY until this station moved into its new broadcast home last summer. Its equipment will incorporate many new features developed by General Electric engineers who not only pioneered but have spent years in television research. These developments assure a more perfect pickup and broadcast of pictures. At such times as studio programs are not available, motion picture film will be used much the same as electrical transcriptions now fill-in on broadcast programs.

From an ultra short-wave transmitter on top of the studio building, the images will be relayed over the 12-mile gap on a 1.4 meter band to the main transmitter in the Helderbergs, where they will be broadcast for public reception on a wavelength in the 66-72 megacycle band or on about $4\frac{1}{2}$ meters. The voice accompanying the picture will also be broadcast on the same band, on a frequency immediately adjoining the picture, assuring reception with less interference from static than experienced on the regular broadcast channels.

"General Electric has been preparing for television in the last 10 or 12 years, and much of the pioneer development work in this country was done in the company's laboratories by Dr. E. F. W. Alexanderson," Mr. Lang pointed out in his statement today. "It was in the autumn of 1928 that the first melodrama 'The Queen's Messenger,' was televised here in Schenectady and a year or two later television was first produced in a local theater on a seven-foot screen, with vaudeville actors in the laboratory studio, a distance of about one mile. The voice accompanying the picture on this occasion was broadcast by WGY on its regular wave band. Since then, General Electric engineers have been studying the art so they might be prepared with the most up-to-date equipment when the time came to build a station."

More than 250 vacuum tubes will be utilized in the complete television transmission equipment, which is five times as many as now used for voice broadcasting. Many of these tubes are of new design. The antenna will also be different, resembling a

cube of wires as strung from the three 100-foot poles. The station is being built so that changes may be made from time to time as new developments in television occur.

Last year General Electric sent radio engineers abroad to investigate and study television in England, Germany, and Holland, so that this station might incorporate the very latest known to the art.

"Because of its ideal location and the fact that it will utilize at least 30 per cent more power than any existing television station in this country, this station should have greater range than the one atop the Empire State Building," explained C. A. Priest, engineer in charge of radio for General Electric. "Knowing what others are doing, I feel sure this station with its many new developments will broadcast a more perfect reproduction of pictures. We will not use the new coaxial cable between our studio and the station but an ultra high-frequency sharp directional transmitter, feeling this will also produce better results because the cable cannot carry the 30-to-40 million cycle frequencies which will be used in television."

The building and the towers at Indian Ladder have been erected, a roadway constructed, a well driven to supply the necessary water for cooling the tubes, all in readiness for the installation of the equipment which will be started at once. It is planned to inaugurate a regular program service about July 1, 1939.

CROSS COUNTRY CURRENTS

NEW YORK—JOE RINES, popular NBC dance band maestro who introduced the Lambeth Walk to America, is going to feature a new dance craze, the Eleanor Glide, in forthcoming broadcasts. Joe says that in his opinion the new dance will prove even more popular than the successfully imported musical promenade.

DAVE ELMAN, conductor of the NBC Hobby Lobby program, may be able to interview himself any day now as a potential hobbyist. He's going in for photography. The day after his wife presented him with a Christmas present baby boy, Dave bought a camera and several books on how to use it.

AL WILLIAMS, the talented young NBC director who did the English translation of the French romantic drama, "The Cid" for presentation on the NBC Great Plays series, has just been honored for the authorship of his original radio play Festival. The play, which is written in blank verse and takes for its theme the tragedy of farmers in the dust bowl, has been published in the erudite "One Act Play Magazine."

MURIEL WILSON, NBC soprano, claims the distinction of being a native New Yorker. She even goes that one better and says that every important event in her entire life has happened within a few miles of her birthplace on 47th Street, Manhattan. It was in this neighborhood that she attended elementary school. Her vocal instruction was obtained at the American Institute of Applied Arts on 59th Street. The lovely star carried on a family tradition by becoming a soloist at the Faith Church on 48th Street.

When she was married to Fred Hufsmith, tenor, with whom she is frequently heard on NBC light opera programs, the vows were spoken at the church where she was soloist. NBC's Radio City studios are located between 49th and 50th Streets.

KOA, DENVER

Al Isberg

Congratulations to NBC and RCA for releasing television and thanks to the Journal for tipping me off about the television issue. Such an opportunity to brag about our television department absolutely couldn't be passed up—so here it is right on top of Walt Morrissey's desk in the control room. As yet the only departmental activity is an occasional dusting if the early morning engineer isn't so sleepy that he can't see the dust and finger prints on the glass!

Along with the last snow, the March lion, etc., came a new Jr. Op at Al McClellens. He weighed 6 pounds and is Al ever the proud dad!



On March 2nd the long anticipated final (I hope) blessed event in my family was realized. Boy, what a hectic time we have had during the past few months. A week in the hospital during December expecting everything to be over any minute, and three dress rehearsals during January and February netting a lot of lost sleep, lost chimes, wrong records, and what not. What a paternal labor pain story I'm prepared to tell! Nelson and Duke still have honors for the large families, they have five, but I'll bet few can claim three kids in three years of being married, and none of them twins. As Carl Schuknecht says, "enough's enough." Next issue will be given to the families, mostly to the babies.

The Rohrsers have an addition to their family too—it's a black English Spaniel and it resembles a little child in "ja-jas."

Ham activity still seems to be on the increase. Williams is almost ready to put up the new antenna for the 5 and 10 fone.

I noticed a story in the March Scribner's that is worth while reading. A farmer-publisher's wife's impressions of radio productions, in particular in Chicago. Also the March Electronics has a fb article about the new VIs.

ROY FELL'S NEW HOME

To most of us, the purchase of a home is the major financial undertaking of our life, and usually about a third of our expected life time is required to pay the mortgage. By the time the house is paid for, it may or may not be in good repair, its location might have gone to the dogs, increased materially in value, or if wisely chosen, retained its original status.

The trend these days seems to indicate that suburban homes are a good bet, especially those built upon tracts of an acre or so.

Undoubtedly some of these suburban developments are unstable real estate schemes and some investors are certain to lose money if the venture fails. However, now that the FHA is established, one may be quite certain that an investment in approved locations will not result in a loss.

Roy Fell, KOA transmitter engineer, has recently completed a new suburban home having many interesting features. Perhaps it was Roy's enthusiasm which sold me on the idea that others might be interested in some of the things Roy learned while he acted as contractor and supervisor on the job.

To begin with Roy had never done any building but knew that a five-room house would suit his immediate needs, and he had a general idea about how he wanted the rooms arranged. After seeing the FHA officials he spent about a month arranging the details of the loan and with an architect while the plans were drawn.

The lot was chosen in a development known as Lakewood, west of Denver. The location is not particularly favorable as far as traveling to the KOA transmitter is concerned because it is nearly as far west of the town as the transmitter is east, (the total distance is somewhat over twenty miles) but the fact that fruit trees and gardens thrive in this region where the soil is excellent, and the mountains are literally in the backyard balances the travel disadvantage. The lot is 304 feet long and 130 feet wide, a full acre of ground measured to the center of the street, and runs east and west. Roy isn't a ham at present, but with such a lot of room for antennas we expect him to take advantage of it after he gets the landscaping completed.

Roy acted as contractor, soliciting bids for excavation, concrete, frame construction, plaster, wiring, etc., and somehow found time to supervise most of it while off duty. The saving was about \$800.00 in cash and the fact that he didn't skimp on materials raised the value of the place considerable more. For instance, some contractors claim to use a 7 to 1 concrete mixture—seven heaping shovels of sand to one level shovel of cement. Roy objected to that and one lumber company actually refused to do business with him because of it. Roy says it's safest to use seven to one proportions in cubic yards then there is no argument. The basement floor was poured 4" thick, (instead of the conventional 2") the dirt having been wetted down and tamped.

The walls in all basement rooms (coal bin, fruit room, recreation room) are concrete and the cost was about the same as for steel I beams and plaster frame construction. The outside of the basement walls was given not just one, but three coats of tar, hence no water spots are anticipated on the inside plaster.

Since Lakewood is not served by the city water and sewage system, a deep well had to be drilled. It is located at the rear of the house in an extension of the basement so that the sucker rods can be easily pulled if necessary. The well is 130' deep and the water is excellent. Roy emphasized that no one should drill a well until he has become familiar with FHA and State health ordinances and knows something about the soil formations, the depth to surface water, and the integrity of the driller. His well was drilled four feet below bed rock and sealed back nine feet insuring that surface water will not seep into the water supply and contaminate it. After the well was completed, the

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PRESENTING OUR NATIONAL OFFICERS

Edward C. Horstman, National President of A. T. E.



Ed, as he is more familiarly known to us in Chicago, was born in Grand Island, Nebraska around the turn of the century. (The question of his birth date is the only question that Ed will not give a definite answer to).

After attending school in Grand Island, he managed to obtain a clear insight as to how the other half lives by virtue of his experiences with Postal, Western Union, various press and brokerage wires

which took him thru nearly every state in the union.

Having satisfied himself that the other half lives pretty much the same throughout the country, he finally settled down in Chicago where, in 1927, he became associated with the National Broadcasting Company. This was in the dark ages through which the radio industry has managed to survive. At that time NBC did not have so much as a single studio in Chicago and Ed was classified as a combination maintenance, field, control and communications supervisor. A rare specimen in comparison to the specialization in radio as we know it today.

When the industry began to emerge from the so called dark ages in 1928 and the first NBC studios in Chicago were located in the Lake Michigan Building the name of Horstman was emblazoned firmly on the sands of time and it began to look as if radio was here to stay. It was then that Ed was made a control room supervisor specifically and the era of specialization was on its way.

Lack of space prevents an adequate account of the many and varied experiences in Ed's career . . . Operating incidents, etc., that make good listening to the newcomer in radio. However, there is one incident of which he is justly proud. He is probably the only engineer who, while engaged in operating a portable amplifier during a world series game, managed to field a foul ball in full flight without leaving his post. Graham McNamee has always insisted that Ed was a dirty so and so for snagging the ball right out of his hands as Graham was all set to catch the ball.

Ed's hobbies include golf, riding, fishing and he is an ardent stamp collector, his collection numbering over twenty thousand stamps. His most prized group are all the commemorative U. S. mints since 1928. Ed's devotion to ATE matters is cutting into his hobby time but he does not complain. We in Chicago think he is doing a fine job and we are sure all other chapters feel the same.

George Maber, Jr.—National Secretary-Treasurer of ATE.



George was born on December 30, 1911 in Kansas City, Kansas but spent most of his childhood days in Blytheville, Arkansas. He attended high school in the metropolis of Wilson, Arkansas, a thriving city of one thousand souls. November 7, 1927 was an eventful day for George as it marked the beginning of a six year stretch in the U. S. Navy. During his Navy career George rode the U. S. S. Cincinnati

on both the Atlantic and Pacific battle fleet assignments of the ship. Time out from sea duty was taken to attend the Naval Electrical School at Hampton Roads, Virginia for a year and a half and then a six months tour at the Fire Control school at Washington, D. C.

George comments on his navy experience as follows, "after waiting for two years, during Mr. Hoover's era of economy, in which no promotions were being made and one year of Mr. Roosevelt's tour of C. and C., during which salaries were cut 15%, I had definitely decided to get out of the Navy and if necessary go back to Arkansas and raise apples and chickens."

Maher was honorably discharged from the Navy as an Electricians Mate 2nd class on September 21, 1933 to join NBC in San Francisco. George had seen two years of Southern California while in the Navy during which time he experienced the earthquakes and several Santa Annas (windstorms to you) in Long Beach. Then came three years of San Francisco and its fog, rattlesnakes, black widow spiders, bridge ballyhoo and very lousy class AA baseball. Life in one spot was beginning to drag on the nerves of a seaman so a transfer to Chicago was negotiated. George is very happy here in the windy city and is very popular with all.

His avocation is a farm at Wynne, Arkansas and among his hobbies he lists golf, wood-working, collecting recordings and he is a baseball enthusiast. In spite of his proximity to the Chicago Cubs he is an ardent Giant fan. He also follows the progress of the Cleveland Indians and says that his fondest hope is that someday the National League will win the series.

George is married and has three sons, Michael Gregory, age 4; Jonathan Patrick, age 3; and Peter Stanford, age 1. The two older boys are native sons of California and George expresses the hope that this will not be held against them. He adds that the youngster was born in Chicago and is by far the healthiest of all three—California please note!

GEORGE E. STEWART

Vice-President



Serving as Vice-President of the ATE, as Business-Manager of the ATE Journal, and as the first man in the NBC Reference Recording is G. E. Stewart, more commonly known as "Stew." "Stew" was born in Yonkers, New York on the banks of the Hudson at the close of the 19th century. He divided his college career between

Union, Purdue and Columbia and first entered his chosen profession in 1922 when he started to work for the National Broadcasting Company. For several years he was employed by Paramount, however again in 1935 he returned to NBC where he has remained since.

"Stew's" work on the ATE Board and the ATE Journal have been indispensable. For several years he has kept the business end of the Journal running smoothly and he has given many hours of his time to its cause. "Stew's" favorite sport is working as can well be seen by the excellent record he has behind him.

CROSS COUNTRY CURRENTS

Eddy Duchin's young man with a horn, Lou Sherwood, was taken ill just before the band's last NBC broadcast and a hurried call was sent out for Charles Marglis, one of the best trumpet tooters in the business. Marglis was instructed to wear a tuxedo for the broadcast. Imagine Eddy's surprise when Marglis appeared in dinner jacket and black tie but wearing a blue shirt. When Duchin remonstrated, Marglis explained, "Well, this is Monday and the laundry doesn't come back until tomorrow. So what! Now I'm red hot and blue."

CARSON ROBINSON and his Buckaroos believe in getting authentic atmosphere for the background of their cowboy songs. To provide a realistic setting, Carson and each of his singing cowhands—including the pretty cowgirl, Pearl Mitchell—wear the picturesque clothes of the ranch country during their Monday night NBC broadcasts.

EDWARD MacHUGH, the NBC Gospel Singer, says that since he began broadcasting hymns, he has received more than 250 Bibles from listeners. Most of them are beautifully bound and many have his initials or full name printed in gold on the covers. His collection of Bibles is said to be one of the finest in the world today.

TED MALONE, who conducts the NBC program, Between the Bookends, offers a Code of Living for 1939 written by his old college professor of philosophy, P. Caspar Harvey. Here it is—ten sentences—seventy words: "Ignorance is the supreme sin. Self-development is the only honor. Acquisition of money is the major futility. Satisfaction begins only in unselfish effort.

The Sermon on the Mount and the Golden Rule are the greatest laws. The body is the sacred temple. Cooperation is the dynamo of man's divinity.

"A thing of Beauty is a joy forever. The rights of all supersede all rights. Every task has vision of service."

WARDEN LEWIS E. LAWES declares that his prison home at Sing Sing penitentiary is a much more peaceful place than a radio studio. On his last Criminal Case Histories NBC broadcast, he recounted a particularly exciting tale in which there was a lot of shooting, breaking glass and general confusion as the sound effects portrayed a criminal jumping through a closed window in the sheriff's quarters. When it was all over and justice had triumphed, the famous warden remarked to Announcer Nelson Case, "I'll sure be glad to get back to prison where it's nice and quiet."

EDITORIAL

Our thanks to Don Fink of Electronics for his exceptional article appearing in this issue of the Journal. When looking about for someone to write such an article we invariably came back to Don as being the best fitted to give us an unbiased view of the situation.

Also—Thanks to Bob Shelby for taking time from his evenings at home to prepare the Television Reading Lists for us. Anything contained in them has been read and reread by Bob and you may rest assured your time will not be wasted in reading any or all of them.

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The ATE Journal is a privately printed publication, issued by the Association of Technical Employees Publications, Incorporated, a corporation of the State of New Jersey with office located at 30 Rockefeller Plaza, New York City.

In the United States and Possessions: Fifteen Cents the Copy, \$1.00 the year (12 issues). In all other Countries, including Canada, Twenty Cents the Copy, \$1.50 the year (12 issues). Remittances from outside the United States by Postal or Express Money Order or by Bank Draft, payable in United States Funds. All prices subject to change without notice. All subscriptions must be paid for in advance.

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SAN FRANCISCO

By Tad Fullaway

WORLD'S FAIR . . . DAYS OF '49 . . . SUN . . . NEW CARS . . . NEW HOMES . . . MORE CONGRATULATIONS TO HOLLYWOOD ATE on a very successful and entertaining dinner dance. Regular old home week saying hello to all the gang that have been transferred from San Francisco to Hollywood. Good food, two dance bands, paper streamers, on the air, fun. San Franciscans Peck, Sugg, and Fullaway home after attending the dance, seeing the new studios, taking the studio tour, saying hello to old friends, and meeting those transferred to Hollywood from the East.

Golden Gate International Exposition off to a flying start on the eighteenth of February. All of San Francisco, including NBC, celebrating for a week prior to the opening. People raising beards, wearing clothes of the days of '49 . . . store fronts redecorated with rough pine planks. Musicians, artists, producers, and announcers in costume . . . Will Aubery as a gambler. Janet Baird in her grandmother's dress—including the hustle, Wally Ruggles as a cowboy . . . and the engineers working overtime to put it all on the air. Broadcasts from Treasure Island . . . dedication, track meets, indoor polo, ski jumping. Exposition Stroller, cormorant fishing, livestock shows, and Clipper departures.

To cover all the varied pickups on Treasure Island the telephone company installed temporarily a big switchboard in the



uncompleted radio building. NBC built and installed a nine position mixing panel and six foot relay rack containing amplifiers and jack strips. Various lines on the island go through the telephone company switchboard then to the nine position fader, through the amplifier then to the loop to the San Francisco control room.

All engineers with passes to the Island—complete with passport photos, none of which looks like the engineers. McElwain drew the prize—his picture looks like Bill Eddy's "Imby."

W6XBE on the air seven hours a day. Transmitter being operated by General Electric operator-engineers temporarily. Rumors that NBC will operate and maintain the transmitter. At present taking both Red and Blue service from three to seven PM, PST. Ex Sound Effects Juan Trasvina translating and announcing in Spanish the afternoon news. Announcer "Trigger" Smith building and announcing shows and recorded musical programs from three to six AM, PST.

Sanders with a new car on order for delivery the middle of March so he can drive north on vacation in April. Williams

with a new coupe over the week-end. Sugg planning on a Mexico City vacation for self and wife. Jacobs planning on a trip to Dallas in April—his gal, who sings with Jesters, now in Dallas. Fullaway also planning on Mexico City.

Rothery finally moved into his new home. Morrison into a new home and back on the air with one kw fone. Fullaway completed moving and now discovering how much work there is to do in keeping a house clean.

For some time Jefferson has had a burning desire to have a small redwood tree to grow in his back yard. On a trip to Reno some time ago he communicated his desire to Williams, who suggested stopping alongside the road and digging a small one up. Miles went by and still Jefferson had not seen one that suited his fancy. Several months later on a trip to Rio Del Mar Country Club with announcer "Trigger" Smith, Jefferson finally saw his dream tree. The mobile unit stopped and backed up. Both climbed out of the unit, got shovels, and walked over to the edge of the road. The ground sloped down sharply—the dream tree was only fifty feet high with just the tip showing above the edge of the road. Jefferson still has his desire.

PERSONAIRITIES

By Ye Scribe

A good and plausible reason why KGO runs along so smoothly and keeps the other stations on their toes in order to win the GE Plaque, is that its staff is graced by three grand fellows from Massachusetts. We have already seen why Henry Dunton is a puzzle to the scientists; Jimmy Ball will be thoroughly scrutinized in a future effort; but this month we put under the



glass, Al Eldredge, who is probably the most colorful of the "down East" trio. Getting this information rather reminded this writer of his siesmeograph days; but then, a ton of dynamite applied to Mother Earth usually made her "give" for miles around while it is doubted that a "double shot" would have forced Al to dish out. Nevertheless, you should agree that the results

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The New WENR-WLS Transmitter

By H. B. Courchane, Transmitter Engineer and

A. R. Johnson, Associate Engineer

The new WENR-WLS transmitter is owned and operated jointly by the National Broadcasting Co. and the Agricultural Broadcasting Co. WENR and WLS share time equally on the 870 KC channel. The construction of the building was started by WLS in June 1938. Mr. Thomas L. Rowe, Chief Engineer of WLS, was in charge of this construction. The transmitter was installed by WLS with the assistance of RCA engineers. The operation of the transmitter is now under the direction of Mr. Rowe and Mr. H. C. Luttgens, NBC Central Division Engineer.

The 40 acre transmitter site is near Tinley Park, Illinois and is about 26 miles from the Chicago loop. The transmitter building is constructed of steel, brick and glass brick and is 63 feet by 60 feet. The main floor is divided into visitors' lobby, office, audio control room, transmitter room, shop, operators' quarters and tube storage room. The basement is divided into a pump room, furnace room, storage room, and a six car garage.

The 50 KW transmitter is an RCA 50 D. This is the latest type RCA transmitter, and utilizes a new high efficiency circuit in the last power amplifier. The equipment is arranged in a "U" formation and this allows all important meters to be visible from the operating desk.

In the audio room the latest type of audio equipment is used. Also in this room is located the testing equipment necessary to check and keep the transmitter in a good operating condition.

Following is some data on the RCA 50 D transmitter:



Carrier Noise—61 DB below 100% Modulation.

Distortion—At 90% Modulation:

1% for frequencies 30 cycles to 1000 cycles.

2% at 4000 cycles.

3% at 7500 cycles.

Frequency Response—30 cycles to 10,000 cycles in variation is less than 1 DB.

Power Input—Total power input to the

transmitter is 138 KW with normal program modulation. Power factor is 94%.

Rotating Equipment—The only rotating equipment used are fans and water pumps.

The radio frequency energy from the transmitter is fed to the tower by a four-wire transmission line 624 feet long. The tower is a Truscon guyed vertical steel radiator 586 feet high. The cross section is a triangle 5 feet on each side. It is made up of 28 welded sections bolted together. It is supported by six guy wires. The tower rests on a Locke insulator. The antenna ground consists of 120 radials of No. 8 copper wire, each 586 feet long. The transmission line and antenna terminating equipment are mounted in the antenna tuning house. The field strength at one mile from the antenna is 1960 Millivolts.

Two program lines extend from the transmitter to the studios. These lines have special loading and are flat to within 1.3 DB (1000 cycles reference) between 35 cycles and 8000 cycles.

Power is supplied from two directions to transformer banks near the building where the voltage is reduced from 33,000 volts to 2300 volts. Service at this voltage is brought underground to cubicles located in the transmitter room. These cubicles contain disconnect switches, oil circuit breakers and metering equipment. In case of a power failure on one line, transfer is automatically made to the emergency line.

"Better Mouse Trap"

Fiji Islanders and residents of Singapore know more about Iconoscopes and Kinescopes than do the people of Wyoming.

They do, that is, if available statistics on the people who made television tours at the National Broadcasting Company studios in Radio City during the period from January 4 through February 3 may serve as a criterion.

According to figures compiled by the NBC Guest Relations Division, visitors from 47 states—every one except Wyoming—Alaska, Hawaii, the Philippine Islands, the District of Columbia and 42 foreign countries made tours of the television exhibit, first complete public showing of the new art in the United States.

New York State, with a total of 2,348 visitors, led the list,

followed by New Jersey with 987; Pennsylvania, 723; Massachusetts, 487; Connecticut, 389; Ohio, 168; Illinois, 166; California, 156; Washington, 138; and Maryland, 108.

For the same period, 216 visitors from Canada made the tour of the exhibit, with England in second position with a total of 46. Cuba contributed 26; Germany, 17; Ireland, Argentina and Australia, 13 each; China, Sweden and Scotland, 8 each, and South America, Italy, Mexico, and Siam, 6 each. Fiji sent two visitors and Singapore had one representative on the list.

Since NBC established the television tour on September 1, 1938, more than 80,000 have visited Radio City to witness the exhibition.

WASHINGTON

By S. E. Newman

WMAL AWARD



PRESENTATION OF G. E. PLAQUE. Left to right. Mr. Boyd Bullock, Assistant Manager of Broadcasting for the General Electric Co.; Mr. S. H. Kauffman, Assistant Secretary-Treasurer, Washington Star; Mr. H. A. Wadsworth, WMAL Station Engineer, and Mr. A. E. Johnson, Washington Engineer-in-Charge.

As related in the last issue of the Journal, the plaque awarded each year by the General Electric Company, to the station losing the least amount of time on the air, for 1938, goes to station WMAL, the Blue outlet for NBC in Washington. The winning time was two minutes and forty seconds, a record which we believe will stand for a long time. In tribute to the transmitter staff a dinner was given at the Willard Hotel on February ninth at which time the official presentation was made by Mr. Boyd Bullock, Assistant Manager of Broadcasting for the General Electric Company. Present were Mr. F. M. Russell, Vice-President NBC, Mr. Fleming Newbold, Business Manager Washington Star, Mr. K. H. Berkeley, WRC-WMAL Station Manager, Mr. S. H. Kauffman, Assistant Secretary-Treasurer Washington Star, Mr. W. E. Coyle, Radio Director Washington Star, Mr. C. S. Smith and Mr. Fred Shawn of the program department, Mr. George McElrath, NBC Operating Engineer, Mr. A. E. Johnson, Washington Engineer-in-Charge, Mr. H. A. Wadsworth WMAL Station Engineer and Engineers C. S. Fisher, E. W. Burg, W. L. Simmons, J. G. Rogers, A. R. McGonegal, and D. O. Hunter of the Washington staff. In further honor of the occasion a fifteen minute program in which most of the WMAL transmitter staff participated was broadcast over WMAL.

PAGING SHERLOCK HOLMES—Unknown to the engineering staff and others we find that for lo these many years Washington NBC has been harboring in its midst a veritable Sherlock Holmes. Quite by accident, we assure you, we came across a page in the diary of said Sherlock. A page in which our sleuth had set down a few clues pertinent to the latest control room mystery titled, "The Missing Key, Who Swiped It, Who?" With apologies to the author and those concerned we herewith reproduce said page.

"The NBC master key usually left in the master control room has been missing since Saturday night. I have heard that Hogan and Chapman say it was in the control desk drawers Friday night. Those habitually attempting to borrow the key are:

PAGES—Who are very considerate of executives such as Messrs. Barry, Shawn, Smith, and would not think of bothering any important person with such a trivial matter. **COMMERCIAL DEPARTMENT SALESMEN AND OFFICE STAFF**—Who either are not issued keys to their own offices or who are plutocratic enough to own two suits and habitually leave their key in their other suit. **NBC MUSICIANS**—Who use the room assigned to orchestra office use as storage space for instruments, overcoats, dirty socks, funny papers, curling irons, nail-files, etc., and are very resentful whenever they are unable to find Messrs. Baer and Balzer in their office. **ANNOUNCERS**—Who are constantly rummaging through commercial department files for that missing Ferguson spot. **HOSTESSES**—Who wish to secure that pretty typewriter to use in typing Esso reports. **MR. EARL GODWIN, ET AL—OF THE NEWS DESK**—With traditional freedom of the press tactics, these gentlemen need only to know the whereabouts of the desired key. Any subtle suggestion to them that the master key is for engineering department use only is received as a direct expression of lack of faith in their personal integrity and an implied detraction from the glorious reputation of Brisbane. **SECRETARIES OF THE GENERAL OFFICE STAFF**—Who thinking it's terrible anyway that "those engineers" should have the use of a master key. When will the NBC wake up and find out who is really running this office, anyhow? **ANYONE**—Who wants to get in any office and has the nerve to ask either the hostess or telephone operator on duty at night where they can steal a key. Having narrowed the list of suspects down to these few, the recovery of the Master Key should present little difficulty." **FINIS.**

FIRST AID—We believe that the Washington engineering staff for the past three years has had the distinction of being the only NBC division having passed the official Red Cross First Aid Course 100%. Credit should be given to K. B. Williams for his efforts in obtaining the services of Mr. Robinson.

STUDIO ENGINEERS—want to know what Chapman was looking at that rendered one of his eyes incapable of focusing for quite some time. Hope trouble is cleared up now, Bob.

WASHINGTON STAFF—loses its latest addition with the transfer of Mr. W. S. Carson, studio engineer, to Television N. Y. Good luck, Shorty.

LENT—has hamitis again and was overheard talking about 56 mc operation.

DAN HUNTER—Studio Engineer, recently gave paper on NBC UHF equipment before Washington Chapter of I. R. E.

THANKS—to NY staff for swell Anniversary issue. It brought back fond memories to many here.

STORK—visits again. Congrats to Mr. and Mrs. J. H. Hogan, on the birth of a daughter. Mother and daughter are doing fine. So is Papa Hogan.

NEW YORK—get Knight to tell about joining Audubon Society. It seems he informed an inquiring neighbor that his rotary beam antenna was a bird roost for our feathered friends on their way south.

HOLLYWOOD—why doesn't someone tell us how Bob Brooke, Hollywood Journal Representative and Miv Adams saved the day for a lot of fire fighters when engaged in battling the three day, half billion dollar fire near Los Angeles they were cut off from each other and used their flashlights to signal to each other from distant mountain tops.

CLEVELAND—Chapter Chairman Caskey solves new wall-paper problem by displaying pictures from Esquire. Not a bad idea, Harry.

NOTES FROM THE F. C. C.

Tests which are in progress on the experimental coaxial cable installation between New York and Philadelphia have demonstrated the feasibility of transmitting 480 simultaneous telephone conversations through a single small cable, according to reports to the Federal Communications Commission.

The same small cable, no bigger around than a broom handle, may be used for transmission of a television program, in lieu of the telephone conversations, although thus far at least the pictures are inferior to those produced by the most modern television equipment.

Alternatively, any one or more of the 480 telephone channels may be replaced by a channel for facsimile or wirephoto. By using two or three of the telephone channels, a high fidelity circuit for radiobroadcast purposes may be obtained, conveying a program from the point of origin, or of "pick-up," to the point where it goes on the air.

The theoretical possibilities go much further, engineers of the Commission pointed out. As it has been proved possible to carry twelve telegraph messages on a single telephone channel, the coaxial cable, with its 480 channels, might transmit more than 5,000 telegrams simultaneously. It was emphasized, however, that many problems remain to be solved, and many adjustments to be made, before such operation could be attempted. Even then it would have to be studied in the light of its effects upon other parts of the nation's systems of communications.

The present cable system is being operated under an experimental authorization granted by the Commission in 1936 to the American Telephone & Telegraph Company and the New York Telephone Company. The cable, 94.5 miles long, was completed late in that year. Since then an extensive program of field tests and experiments has been carried out by the Bell Telephone Laboratories.

This novel medium for the transmission of communications was authorized for the purpose of broadband transmission. It utilizes the principle of transmitting a large number of different groups of electrical impulses of different frequencies over a single pair of conductors. The elaborate and ingenious equipment which is used in conjunction with the cable "sorts out" the frequencies, so that the voices transmitted on each frequency are as distinct as if they traveled over a pair of conductors all by themselves.

An application is pending for authorization to build a similar coaxial cable installation, twice as long, for commercial use. This application has not yet been acted upon by the Commission. The proposed system would be installed between Stevens Point, Wisconsin, and Minneapolis, Minnesota, a distance of 195 miles. It would be installed and operated by the American Telephone and Telegraph Company and the Wisconsin Telephone Company. It would utilize four coaxial units instead of the two employed in the experimental installation, but the second pair would be for "stand-by," or reserve, use.

The New-York-Philadelphia cable, has an outer covering of lead $\frac{7}{8}$ inches in diameter, and contains two coaxial units, which are a pair of copper tubes, with a wire centrally located in each tube. Each of these tubes is approximately the size of an ordinary lead pencil, while the wire within is about the size of a pencil lead, which is held centrally by thin slotted discs of hard rubber, equally spaced along the wire.

Although the coaxial system receives its name from the line structure, greater novelty resides in the repeaters and terminal apparatus. This broadband system permits the use of a much larger frequency band width and a larger number of channels over a single pair of conductors than has been possible heretofore. One of the units is used for transmission in one direction, while the other unit is used for transmission in the opposite

direction.

An "ordinary" telephone channel is provided by a pair of wires, which handles conversations in both directions. In connecting such channels to the coaxial system at New York, the first step is to split the outgoing talk from the incoming. By "modulating" apparatus, the outgoing talk is lifted to a new position on the frequency scale, just as a broadcast program is lifted to a position in the radio range. Eleven other outgoing channels from different subscribers are placed one after another alongside the first the group occupying the range from 60,000 to 108,000 cycles. At the same time, other groups of twelve channels each are formed, and each group is lifted as a unit to a new place on the scale. Eventually the range from 60,000 to 1,020,000 cycles is filled with twenty groups of twelve channels each. The entire range is then transmitted over one of the coaxial "pipes" to Philadelphia, where it is broken down into individual channels for transmission to the proper listener's ear. The same process is carried out in transmitting the telephone channels from Philadelphia to New York over the other coaxial unit.

While tests were being made on the New York-Philadelphia cable, the Bell Telephone Laboratories was developing a repeater capable of amplifying a band width of 2,000,000 cycles. The 1,000,000 cycle repeaters were removed and the 2,000,000 cycle repeaters were installed at five mile intervals. From tests made with the new repeaters, it was found possible to accommodate 480 high grade telephone channels.

This 2,000,000 cycle system will provide for television currents corresponding to about 350 line pictures. This is a superior grain to the 240 line images previously transmitted; nevertheless, it is still inferior to the grain produced by the most modern television equipment (441 lines or better).

Tests were also made on the system with the circuit channels looped back and forth at the terminals to give a total telephone circuit length of 3,800 miles, equivalent in distance to transmission from coast to coast. The quality of telephone transmission was satisfactory. In this connection, the conversations in each direction passed through no less than 70 stages of frequency transformation.

Television was transmitted over the cable, in the form of sound motion pictures, from New York to Philadelphia. For this purpose the telephone terminal equipment was removed from the system.

The demonstration showed, for the first time, the unique and economical utilization for television currents of the frequency band of a long coaxial cable. Instead of transmitting the television currents by the double side-band method common to radio broadcasting, a method for single side-band transmission was developed, thus utilizing the frequency range to the fullest capacity.

This country has led the way in the development of the coaxial cable. American equipment is considered to be unexcelled. The installation and experiments here have prompted European telephone administrations to adopt this system recently.

A four core coaxial cable network is being constructed in England. One cable between London and Birmingham, containing 80 telephone channels, has been in service for several months. Another is being constructed between London and New Castle.

Another European coaxial system was placed in service between Leipzig and Berlin, Germany, last year. Capable of transmitting 30 telephone conversations simultaneously, it can also be utilized to transmit television programs of low grade definition.

The idea of the coaxial form of transmission line is relatively old, and was studied theoretically and mathematically at various times during the latter part of the last century, going back to the work of Rayleigh, Heaviside, and J. J. Thompson.

CHICAGO

F. C. Shidel

With Paul Moore out of the ARRL DX contest, due to activities contingent to the construction of a new home in suburban Chicago, Jim Platz, W9GY, is the best bet among the Chicago ATE hams to pile up the largest score. After fifty hours of operation in the contest Platz has worked 23 countries on ten meters, 31 countries on 20 meters and 22 countries on 40 meters, giving him a score of 32,968 points.

W. O. Conrad, W9WC, has worked 29 countries in less than thirty hours.

Chicago is bidding another good man farewell as W. L. (Bill) States, SE, leaves March 16th to join New York television. So long Bill and the best of luck in your new duties.

As a result of there being no talk back equipment in Studio K, the pancake studio, production, Freddie Schweiker and announcer, Elizabeth Hart have a private lip language developed that is very effective for "talking through the glass."

Paul Moore, Chicago transmission engineer; Bill Edwards and Leroy Moffett, New York, are fraternity brothers of Alpha Sigma Delta, radio frat at Oklahoma University. Moore and Moffett are also Alpha Sigma Phi's.

Russ Sturges was very much surprised when he found that some mice have established living quarters in his NC 100X receiver.

Ed Holm, ME, has a new Ford V8 sedan.

Ed Horstman has a new Plymouth sedan and was he burned up when he extracted a rear fender the first day while backing it out of the hanger.

H. F. Abfalter, SE, received a B. S. degree from Armour Tech on February 1st.

More studio engineers are acquiring "Night Club Tans" since Chicago added a few niteries to its pickup list.

Byron Spiers, not satisfied with his gardening activities in Glen Ellyn, has purchased a ten acre farm near Wheaton, Illinois.

The improvements consist of a house, (which he has completely remodeled) a barn, a windmill and a silo. The windmill and silo are for sale. By says he has no live stock but there are lots of fruit trees and Canada Thistles. If he is lucky and makes the 1:30 a. m. train he should be in bed by 3 a. m. When asked about what he planned to raise he replies, "Welsh Terriers and Cain—not sugar."



Chicago Chairman Ed Horstman signing Ina Ray Hutton for the dinner dance to be held April 14th in the Casino Room of the Morrison Hotel.

The Chicago chapter of ATE is sponsoring a dinner-dance to be held in the Terrace Casino of the Morrison Hotel on the evening of April 14th. This will be the first affair of its kind to be promoted by the Chicago chapter. We hope to create a closer social relationship between the engineers and all others of the radio broadcast industry. Engineers of the Columbia and Mutual networks and of the Chicago area stations are cooperating with chairman Joe Conn to make the event a gala affair.

Ina Ray Hutton and Charlie Agnew will furnish music for dancing.

A broadcast pickup to be made will feature the NBC engineer on the job doing his stuff under the blinding rays of the biggest spot light available, while friend announcer will have to be content with a position in a remote dark corner. We hope this will not be considered rude but after all the engineer deserves a break occasionally.

Two V. I.'s will be projected on the walls of the Terrace Room so all present will be able to check peaks on the bands.

BING CROSBY knows all the answers "In Defense of Being Lazy." A woman magazine writer was interviewing the NBC star last week for material on this subject. As usual, Bing was informally dressed. The interview had been in progress for some little time when the writer asked why Bing wore his shirt tails out. Bing's laconic answer was sure fire stuff for her article as he replied, "Because it's easier than tucking them in."

HOLLYWOOD

By Bob Brooke

Major Lohr's Visit . . . Amos 'n Andy Leave . . . Hollywood Full House . . .

SUN . . . It's been a BEAUTIFUL winter in Hollywood . . . Lots of sun . . . good oranges . . . everything green . . . On the first anniversary of last year's disastrous flood we threw our first beach party . . . Our *first* winter new arrivals from East and North think Southern California's bit of all right . . . The gradual and distributed rainfall speaks well for a luxurious spring wild flower show in desert and valleys . . .

VISITOR . . . Major Lohr spent ten days with us in early March . . . His first visit to new Radio City . . . Attended most of our bigger shows . . . Spoke before a meeting of all employees . . . Spent considerable time answering questions on television . . . Worked much on the Movie-Radio question . . . Quieted rumors of Movie-Radio rift . . . Acted to tone down Hollywood gossip commentators . . . Delved into what makes Hollywood go . . . Made many friends . . . left a relaxed and relieved feeling with Radio and Pictures . . .

GENERAL MEETING . . . Studio "C", 10 A. M., all employees except those on watch . . . Stage setup with speakers' table . . . mike setup for piping doings to those on duty . . . Mr. Lohr and Mr. Gilman arrived and caused a buzz of favorable comment by seating themselves in the auditorium front seats instead of on the stage . . . Mr. Gilman introduced Mr. Lohr . . . Mr. Lohr spoke informally and put everyone at ease by showing a close personal interest in Hollywood activity . . . stated, "We all work for the same company and I just happen to be in charge of it" . . . "I hold no secrets from my employees" . . . "Without doubt your new building is the finest most efficient for radio production, the most modern studio group in the WORLD today" . . . "Our business and income has increased but so has the cost of running our business" . . . "Our net earnings are down" . . . "It is up to each of you, particularly the lower salaried worker, to practise economy" . . . "I can only ask for economy, I can't carry it out" . . . "Today there are probably more total listeners to your Hollywood programs, than to those of any other broadcasting center including New York" . . . "This would be based on the ratings in audience surveys of your many high ranking programs such as, Chase and Sanborn, One Man's Family, Kraft, Jello, etc." . . . "Each of you, in your contacts with the public, must maintain honor and integrity of the National Broadcasting Company" . . . Mr. Lohr asked all employees who had come to Hollywood in the past year to stand . . . more than half the audience stood . . . The meeting ended with questions from the audience answered by Mr. Lohr . . .

ENGINEERING MEETING . . . Mr. Saxton arranged for an Engineering department meeting with Mr. Lohr for the day following the general meeting . . . It was held in studio "F" at 10:30 A. M. . . . Mr. Gilman, Mr. Saxton, Mr. DeWolf, the air conditioning engineers, and the entire engineering department attended . . . The subject primarily was Television . . . The meeting was informal and the engineering group felt right at home with a fellow engineer, Mr. Lohr . . . Mr. Lohr covered particularly radical developments in the past few months . . . He stated: That the economic and the program factor is vital to the future . . . 35mm film costs more than \$1,000 a minute to make . . . he is pushing experiments with 16mm pictures to

be produced for television alone . . . that Hollywood and pictures are not vital to the art . . . that studio programs sometimes take days of rehearsal for a single half hour performance . . . program costs are prohibitive . . . search is being made for a less expensive program means . . . recent developments in remote television have practically scrapped the \$100,000 mobile unit . . . Development of a portable camera and amplifiers comparable to audio NEMO equipment is in progress . . . development of a means of transmitting 3mc band widths over ten miles of ordinary telephone pair (cable) . . . Working out of a network of such television circuits throughout Manhattan for immediate test and research . . . greatly increased value of news broadcasts by such means . . . (Short wave links will always be required as standby and for points not connected by wire) . . . tremendous increase in transmitter and antenna efficiency on UHF bands . . . work on television radio circuit by means of low powered transmitters on super UHF frequencies . . . Using extremely directional (rifled) beams so arranged and shielded that an entire network of stations could receive and relay on the same frequency without feedback or phasing . . . development of a coaxial cable offering greater transmission band width . . . no idea when transcontinental service might be available or by what means . . . The informal chat was concluded with questions and discussion from the audience . . . Engineers were grateful and thanked Mr. Lohr for an interesting and informative meeting . . .

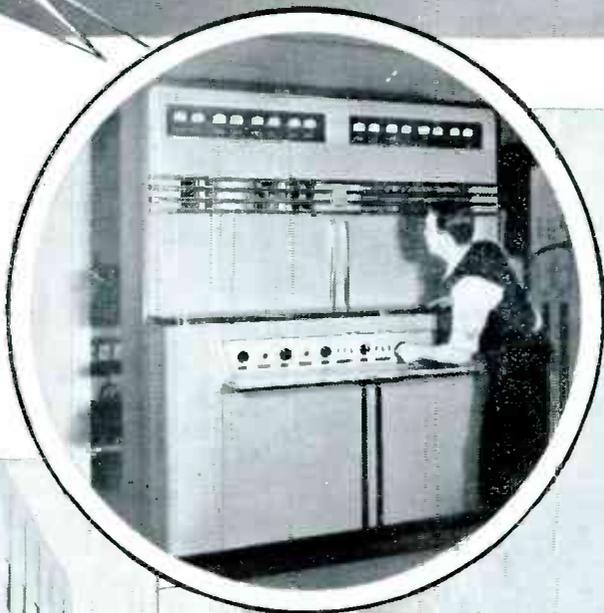
JOURNAL . . . Our apologies to H. C. Mosher and Schenectady chapter on finding name Hollywood scribe under Schenectady's column heading . . . Sorry, must have been typographical error . . . Alice Tyler, Mr. Saxton's secretary, wonders why not more dope on the gals in other offices . . . Orchid to Denver for a swell column . . . and stories . . .

GOSSIP . . . Franky Figgins up and buys himself a Super Iconta "C", a Weston light meter, and a roll of Ultra speed film all in one lunch hour . . . Ultra speed film came back looking like the toast I usually burn . . . What's the matter Frank? . . . light meter wrong or did they develop it outside the dark-room . . . Note San Francisco gradually adopting good cameras . . . Buddy Sugg trades the Contax for a Junior Speed Graphic . . . Les Culley back from SF Fair . . . Likes it sez it's worth the trip . . . Earl Sorenson sporting a new Plymouth Sedan . . . Buddy Twiss cooking up a big Palomar Telescope show . . . We'll be after your transmitters for that one SF . . . Al Korb put up an 8JK beam following the wind storm . . . Oh yes . . . correction last issue . . . "When little Morty puts up an Antenna it stays up . . . LONGER" . . . MO's came down the day I wrote that . . . Big wind that morning whipped the guys and a turn-buckle came apart . . . down came both sticks and the Johnson Q . . . Not putting up another till I move sez MO . . . Maintenance have a new tea wagon oscillator-gainset job . . . very handy gadget . . . Also a new Variac on their test bay . . . Al Korb and Carl Lorenz losing sleep over the DX contest . . . Joe Kay darn near broke a leg when one ski turned completely around while the other kept on going . . . Joe sez I didn't know a foot could completely reverse itself . . . Kay Phelan entertain eastern schoolchum . . . reports her mother dropped a lemon meringue pie yesterday while taking it out of the oven and sort

Continued on page 20

From the darkness of un-

TELEVISION TRANSMITTER
First RCA 1 KW Television Transmitter developed as a compact unit for experimental use and announced for general sale to broadcast stations.



MOBILE TELEVISION TRANSMITTER
Mobile Television Transmitter Unit designed for picking up "on the spot" television broadcasts. Used in RCA-NBC field tests.



ANTENNA
Antenna on top of Empire State Building designed by R.C.A. Communications and used in broadcasting television programs to Greater New York area. The lower antenna is used for picture transmission, the upper radiates the associated sound wave.



TELEVISION EQUIPMENT

RCA MANUFACTURING CO., INC., CAMDEN, N. J.

certainty RCA has Produced Light!

TELEVISION

is here!



Yes — and RCA now offers broadcasters a variety of equipment for telecasting . . . equipment that you can depend upon to perform with accuracy and efficiency . . . equipment resulting from endless years of research in the RCA Laboratories.

TELEVISION! Few advances in civilization have been so widely discussed, so mystifying, so difficult to perfect. For years television has been regarded as a certainty . . . but the question of *when* has been unanswered—until now!

Television is here! Gone is the uncertainty. No longer is it strictly a laboratory problem. Years of research by engineers in the RCA Laboratories have produced it in a practical state. And now, although many problems are yet to be solved before television can approach the status of perfection that radio knows today—it has reached a point where forward-looking broadcasters can use it for the transmission of programs.

On these pages are illustrated three RCA television products designed for broadcasters (or telecasters). They employ the same fine workmanship—result from the same painstaking research—which have combined to produce the outstanding RCA broadcast equipment that is used by so many radio stations today. We shall be happy to discuss them with you in detail.



TELEVISION CAMERA

One of the television cameras developed by RCA. This camera utilizes the RCA Iconoscope.



TELEVISION PROJECTOR

Television Projector for showing image produced by optical enlargement or projection from a small brilliant image on the kinescope.

WABT - WAIN - WEOA
Ray Arthur RRPO Evansville Ind

EQUIPMENT

A Service of the Radio Corporation of America

NEW YORK

By Ted Kruse and Jon Larson

On Wednesday, March 15, 1939, a group visited RCA Camden where RCAM was host for the day. The swell lunch was enjoyed by all which helped break up the walkathon thru the many floors of the many more buildings. RCAM has a sweet layout there and is really putting out ultra equipment these days.

All the gang here in New York has expressed its approval of the outstanding job our ATE president Ed Horstman is doing, particularly in regard to the most edifying regular bulletins written and dispatched by him to all divisions. This is the first time that all our offices have been informed with any degree of regularity and dependability. We realize too that Ed Horstman is putting forth a great deal of effort in knitting our separate groups together more firmly with most intelligent and thought-provoking letters, bulletins and editorials. We are not lacking in executive direction with Horstman as our president. Let's give him more support to help achieve the purposes of our organization. We're looking forward to your next visit with us here, Ed.

Fred Walworth is again with us in Field after a prolonged sojourn in the hospital, having successfully defeated that highly feared bugbaer streptococci which crept in when Freddy wasn't lookin'. So glad to see you back, Fred.

We note in the New York Times of March 17 that the Wages and Hours administrator, Elmer F. Andrews is expected to recommend thru the House Labor Committee to the House that an amendment be made to Wages-Hours Law to exempt those making salaries in excess of \$200 per month. Many will welcome this.

The first open hearing conducted by an industry committee under the Wages-Hours Law will be held April 18th with the counsel of apparel manufacturers in New York City.

Well, it seems that the "Sidewalk Superintendents" club has moved from the sidewalk outside NBC to the "Engineer's Lounge" in room 589. At least that is the impression one gets from listening to the "Studio Superintendents" who have been attempting to design the new building while looking through a window in the room. Human ants have been hanging steel here, there, and every where and soon the finishing touches will begin to appear. Where the next building will appear is now cause for speculation.

Ashworth just returned from Lucky Strike pickup of Abe Lyman at Cleveland and has still to make stops for Lucky at Detroit and possibly the west coast.

Popular Charles H. (Joe) Colledge has transferred to Bound Brook (WJZ) where he'll settle down to a more peaceful life much closer to home.

"The Vallee of the Andes"



GIVE ME A BALANCE QUICK BOYS

On air Christmas Eve, 1938, from highest point on Peruvian Railroad. Name of Program, "Christmas with Indians in the Andes."



Starting out to do a broadcast. Sturgell in Lima, Peru.

Don't forget this is open air stuff and the point at which these are set up has an elevation of exactly 15,888 feet.

Dewey's comment: When you hear these boys play you feel like taking the first parachute and going down.

One of the comparatively few (of late) special events took place Sunday, March 19th, demonstrating by pickups from Mobile unit, plane, train and motor yacht, the many ways of reaching the New York World's Fair.

Allen and States from Chicago recent additions to the Television group.

The Atlantic Clipper still on shakedown tests and to go to Bermuda now. Unit still waiting for the still indefinite eastward hop.

On March 14th, Supervisor of Announcers, Pat Kelly received the following letter from C. W. Fitch, Business Manager of the National Broadcasting Company. Quote Dear Pat: The Company is throwing a party in honor of Mr. A. S. Hibbard, Chief Announcer of the B. B. C., who is visiting this country. As Mr. Hibbard is accompanied by his wife, I would appreciate it very much if you will arrange to be present, with Mrs. Kelly, at the Emerald Room of the Hotel New Weston, Friday night, March 17th, about 11:00 P. M. Of course Mr. Hibbard wants to meet as many of our announcers as he can, and I should like you to assign just as many of your men as possible to attend. Black tie is ok. Please let me know that I can count on you and Mrs. Kelly being there. Unquote.—Oh! Me! exclaimed Pat "I'd give ten dollars to stay away from that 'clam bake'!"—The "clam bake," so it turned out, was a surprise party in honor of Pat. Needless to say, he was the most surprised man in New York City on the night of March 17th. Festivities included the presentation of a medal by Milt Cross for ten years service with NBC, speeches by several of the announcers, and a fifteen minute dramatic presentation entitled "A day in the life of our boss." Luminaries present included Messrs. Royal, Milne, Rainey, Carlin, Hanson and Fitch. The announcers showed themselves worthy of the word discrimination by bringing along a carload of pulchritudinous peaches (50—Gorgeous girls—50). Need we say, a merry time was had by all?

At a recent dinner and beer party given by the staff at WEAJ at Mikes Tavern in Freeport, L. I., the inevitable happened and several practical jokers "held the bag" themselves. It seems that the jokers wired (Lucky Horse Shoe) Phelan's Chevvy with a couple of bombs. When it came time to go home, Charlie had quite a gang out to see him off. He stepped into the car, started the motor, and drove quietly away. However, when Ed Gundrum (one of the perpetrators of evil things) started his Packard, there was an explosion which could be heard for blocks. All of which seems to prove that you have to get up early to put one over on Charlie.

Maintenance Engineer Einar Johnson became the father of a baby boy weighing something like 8,31416 lbs. Johnson seems to be recovering rapidly.

FINIS

CROSS COUNTRY CURRENTS

LES BROWN, the Duke University lad who within a bare three months has placed his crew among the country's leading dance bands, is a veteran despite the fact that he is one of the youngest batoners in the business. For Les, who is heard over the NBC networks four times a week, has been playing in orchestras since he was nine. He's 26 today—which gives him 17 years' experience. Add to that personal instruction he received from the world famous Patrick Conway, with whose band he played when only 15; three years of hard study at the Ithaca

Conservatory of Music; his work as arranger for Ruby Newman, Isham Jones, Red Nichols, and others and you have a fairer idea of how really old—musically speaking—Les Brown is. And how good!

CHICAGO—Ruth Barth, NBC actress and continuity writer Paul Henning are that way. They first met five years ago in Kansas City when they were both working as radio actors and were cast as the romantic leads in a script serial dealing with a pair of newlyweds. Time passed. Their roles in radio took them apart. Recently Ruth and Paul met again in Chicago. This time they decided to make it good. Their engagement has just been announced.

MERCEDES McCAMBRIDGE, leading woman in the NBC Story of the Month titled "Into Tomorrow," is going to become an aviatrix sometime during 1939. She starts her air training on St. Patrick's day for good luck. That's also her birthday and the flying lessons are a present.

BOB BURNS, of the Arkansas Burns tribe, complains that his bazooka solos are so popular on Thursday's NBC Bing Crosby's broadcasts, that the other members of the cast are always edging in for important solo parts. So many edge in that Burns is always on the edge of being edged out. All of which prompted him to plead, "Some Thursday, let's have a bazooka solo in which I can be featured."

GEORGE JESSEL, m. c. of NBC's Jamboree, started his career with Gus Edwards in the latter's "School Days" revue

BROADCAST STATION ENGINEERS

Make Sun Radio Your Buying Headquarters
Because If It's Radio or Television—
We Have It.

Television headquarters—always a leader in radio, Sun Radio Co. sets the pace for television engineers with a complete stock of components, kits and tubes. Make Sun your headquarters for television just as you have for radio. RCA Television parts available.

- Headquarters for Television Kits made by Meissner and Andrea.
- New Patent High-Fidelity tuner and amplifier in stock and now on demonstration.
- The New Sky rider 23 with drift compensation and wide range selectivity built by Hallicrafters in stock now.
- Genuine Packard automatic record changer on sale \$22.50. What a buy!
- Hammarlund HQ-120-X communications receiver—band spread—crystal filter in stock.
- Miller "True Fidelity" band pass tuned radio frequency receiver and tuner. Selling like hot cakes. Kits for sale, of course.

SUN RADIO CO.
212 Fulton Street, New York, N. Y.
Cable Address: SUNRADIO NEW YORK

CLEVELAND

By F. C. Everett

Now that the annual scramble is over and the vacation schedule has had the year's accumulation of dust cleaned off the boys are beginning to get that far away look in their eyes which can only mean that their thoughts are headed for far away places. It is time to shake the baby's bank and see if there are enough nickels to fill that three weeks with joy. By the looks of the maps and booklets scattered around, the gasoline companies should do very well this year. So far we've heard of projected excursions ranging from Maine to Florida and at least one to New York World's Fair.

Artists, announcers and engineers combined to form the "1070 Club," to create a better chance for association and contact, which may have been lost now that WTAM occupies new quarters where the various divisions are more segregated than formerly. Clubrooms in the basement provide for a pool table, ping-pong facilities and a lounge. The walls are rapidly being decorated with photos of the various persons and personalities that are now or have been affiliated with various phases of WTAM. The transmitter engineers were made honorary members with a standing invitation to use the facilities available at any time.

H. A. Gowing, SE, narrowly missed having himself a case of pneumonia as the result of a tangle with the flu germ. He's back at work, same as ever, though. The transmitter gang have been taking a beating with said flu germ, mostly with lighter cases and have been coming to work just about able to wiggle.

B. C. Pruitt, SE, attended part of the Radio Broadcast Engineering conference held in Columbus, Ohio.

H. A. Gowing, SE, and H. B. Caskey, SE, let their licenses lapse unawares. This made necessary considerable wear on the books and beating of heads against the wailing wall. During the bout with the RI many screams of agony were heard emanating from the sacred precincts but the boys came through with flying colors and high grades and two shiny licenses now grace the master control room, without a blot on their escutcheons.

C. C. Russell, station engineer, made over the fruit room in the basement into a photographic dark room necessitating removal of the fruit into the coal bin. This caused the elimination of coal by the installation of a gas burner in the furnace. Maybe we have the sequence wrong, but the net results are the same.

J. S. Disbrow, OS, announcing to Wittam and Pruitt that for real high class contrast in copy work, the use of a caustic form-

ula such as D 9 is best.

F. C. Everett, TE, expects to be driving a new car around if he can bring to a boil any of those stews which he has been stirring up in an attempt to get something for his old Ford.

An old friend of Cleveland's—Gene Hamilton—was grounded at the Cleveland airport by a heavy snow while he was enroute to Chicago, February 21. However a phone call turned it into a lively session of chin music.

March came roaring in like a lion, with a 50 mile an hour gale. While passing G. E. Makinson's (TE) redoubtable rotary beam which has been responsible for so much DX and fame at W8IDBC, it took a snap at a couple of guy wires. The net result was that the supporting tower reacted much like a candle on a hot stove and folded up. We are assured by the chief engineer of that station that it will be rebuilt twice as tall and the supporting tower will be twice as fat. Just before the DX contest, too.

H. L. Clark, TE, has become the builder of gadgets at the transmitter. Can snap up and dress up such things as old transmitting condenser cases and turn them into ohmmeters for example. One project which has been occupying him for this winter is the designing and building of a set of thermostatic controls for his furnace.

CROSS COUNTRY CURRENTS

NEW YORK: When FRANKLIN P. ADAMS greeted ALEXANDER WOOLLCOTT as guest expert on the NBC program Information Please, it was "Hello, Sarge!" Without a smile Woollcott replied, "Hello, Maj!" The two famous wits were not trying to be funny. It's just their mutual greeting that goes back to the days of the World War. Captain Adams was assigned by the high command of the A. E. F. to keep his eyes on the bright young boys writing and editing the famed Stars and Stripes, the doughboys' own newspaper. Star reporter Woollcott held the rank of sergeant. And though Adams ranked as a captain, he was always "Maj"—major abbreviated—to his boys.

JESSE CRAWFORD, who furnishes the musical background for TED MALONE'S NBC program, Between the Bookends, is called "the poet of the organ." Give him a copy of a poem or even a page of straight prose and it becomes a musical score. The written words suggest music to Crawford. That is why his only musical score for Between the Bookends is Ted Malone's script. Crawford has his own copy and follows it line for line as Ted reads, improvising the music he plays . . . the poet of the organ.

WOEH TESTS

J. E. Kay



Last year when sunny Southern California suffered a battering rain for over a week steady there were washouts of everything from rose gardens to radio lines. They say lightning never strikes twice in the same place, and the local Chamber of Commerce along with Sinclair Lewis say "It Can't Happen Here". But it was decided that should the god Pluvius or for that matter any other evil spirit rend harm to the existing radio lines out of Hollywood, we should have some means of getting our programs out to the network. With this in mind it was planned to use the tried and true veteran 100 watter WOEH as a radio link between Hollywood and San Francisco from whence the programs could be fed to the network. A series of tests were conducted with this in mind, a short summary of which follows.

WOEH along with its power supply and batteries was set up in the garage at the NBC studios here in Hollywood. Two antennae were tried first, one on top of the studios and then on stretching from the studio building across the parking lot to the roof of the O. K. Olsen Building. It was decided that probably 8655KC would be the best frequency to use for day-light transmission and 2758 for the evening. These were the frequencies tried.

Using 8655 the Collins output circuit of WOEH was disregarded, coupling being made to the tank coil with several turns of wire which fed a balanced pair 75 ohm line. EO1 cable was used. This connected to a half wave doublet antennae. For test purposes programs of the blue network were used with our own cut-in announcements. The receiving point was RCA at Point Reyes. From there the programs were piped to San Francisco. It was found that the result was very good. On this frequency the received programs were excellent up to 5:30 P. M. but could be used as late as 7 P. M. Recordings of the received programs were made and the quality was so good that for the most part it was thought perhaps some mistake had been made and the record made off the direct line.

On frequency 2758KC the results were not quite so good. Two methods or rather type of antennae feed were used but the results were about the same. The first was a single wire 600 ohm feed, using a half wave antennae with the feed attached at a point one-seventh of the length of the antennae. The second method was the same as described in the case of 8655KC namely the balanced pair, using of course a different length of antennae. This time a half wave doublet for 2758KC. Al-

though in an emergency the received programs on this frequency might have been used there was considerable phase distortion and lots of interference. It is of interest that all of the short wave work carried on by the local fishing fleets is done on frequencies all around 2758KC. It was quite startling to hear someone with the call letters WoBH on what seemed to be exactly 2758KC on the receiver dial, talking about so many tons of fish off Catalina.

Some further tests may be carried on in the future. Perhaps better results may be obtained on 2758KC if proper antennae height is obtained.

At any rate should ill luck beckon our local lines we shall still be able to get Charlie McCarthy's "I'll Mow Ya Down" out to the rest of the world.

MICROPHONICS HERE AND THERE

Ken Carpenter, famous for his performance on the NBC chimes, missed the chance of a lifetime when he was forced to decline an invitation from San Francisco's Golden Gate Exposition to ring the carrillon on Treasure Island. "What I couldn't do with those big bells," Carpenter moaned, "but rehearsals and programs won't wait."

Bill Hay, announcer for Amos 'n' Andy, made his debut in radio on the now extinct KFKX, Hastings, Neb., where he taught voice and ran a piano store. For two years he sang and announced his program from a two-by-four studio with potato sacks for sound-proofing.

Pat Barrett, NBC's Uncle Ezra, gets many of the ideas for his Alka-Seltzer National Barn Dance program from folks in small towns.

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(W2AOQ)

HOLLYWOOD

continued from page 13

of upset the week for the Phelans . . . Bob Callen to Palm Springs last week end and back with a fine tan . . . Steve Hobart has moved into his new Westwood home . . .

LEAVE . . . Many a broken heart around NBC these days with our old friends Amos 'n Andy leaving . . . Boys came back from their NY trip with the news . . . Told me, "We don't want to go, it was sponsor's orders" . . . no more Palm Springs trips for Ray . . . He'll have to go to work again . . . Last program in studio "E" boys had tears in their eyes as they left . . . inscribed names and dates under window . . . Will end their NBC contract from the Palm Springs studios . . . then to CBS on April 3rd . . . We wish them every luck . . . over eleven years with NBC . . . Most of the last four from Hollywood . . . Two great guys . . . who could argue with a sponsor over a quarter of a million saving . . . We had heard humors via the daily trade papers but didn't believe it till the boys told us themselves . . . Certainly hope they'll be back . . . in the meantime we're wondering what will fill their old times . . . 73 Freeman and Charley and Bill and Madeline . . . If those other mikes don't work remember we're only a block away . . .

MISC. . . . New 2758 doublet for WOEH put up from our highest receiving mast to the Oleson building across the parking lot . . . EO-1 cable feeding it . . . Coconut Grove closed because of waiter strike . . . Same threatened the Biltmore but they are still open . . . Spots being filled with organ and other pickups . . . Rudy Vallee is back out for pictures and looks like an extended stay . . . Was playing tennis within an hour of getting off the train . . . Tommy Riggs and his Quaker Oats show out for a brief stay . . . Richard Crooks and Firestone scheduled for a couple during Crooks concert tour . . . been a long time since we've done Firestone . . . Grapenuts is due back and rumors say that Al will put on a couple from Palm Springs if they can find a place to work from . . . He was down there with his daily hour show in 1935 but doubt if the old spot could hold his enlarged group . . . hear that Jack Benny would like to do a couple from down there too . . . Schedule looks pretty tight for the summer . . . Fine barber shop has gone in across the street and calls itself Radio City Barbers . . . some of the best barbers from the big hotels running it (plug) . . . Earl Carroll's still going strong . . . sending his show to SF Fair, cutting prices for summer and training new show . . . Tropics new bar and dining room open right across Vine from Engineering offices . . . branch of the famous Beverly Hills Tropics and quite a swank spot . . . Harry Alber of Air conditioning building a beautiful solid walnut colonial bookcase and desk . . . Alice Tyler doing much running around lately . . . To SF last week end . . . Operatives report new heart interest in Pasadena . . . Joe Kay wondering if skiing was such a good idea . . . "De" DeWolf reports most of the bugs out in the recording room . . . filters in . . . new double desk . . . four channels . . . two playback channels . . . WOEH tests for emergency link to San Francisco completed on anniversary of flood . . . A few chilly nights necessitated smudging in the orange districts . . . winds next day blew much black smoke over the city . . . Santa Anita more beautiful than ever this year . . . last racing day people were allowed to pick all the flowers they wanted . . .

WHAT . . . Wish all the networks could get together and inveigle Pappa Bell into extending his 7500 cycle circuits from Omaha to Hollywood . . . After all these years and revenue you'd think he'd break down and give us a hand . . . He had 8500 cycle circuits in to San Francisco five years ago on a test basis . . . Heck, there's so much open wire across the plains that only half a dozen repeaters would be affected . . .

Well it's spring and we're going places . . . 73.

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SAN FRANCISCO

continued from page 8

merited the effort.

Addison E. Eldredge made the front pages of the local gazette of North Abington, Massachusetts on February 5, 1896 when he pulled a FDR Jones. His early life was uneventful, memorable, mainly, for the occasional apple-swiping escapades and a few scouting parties on which the fair lasses were menaced with no results—so sayeth the deponent!

Al graduated from Huntington School in Boston and attended Northeastern University until 1916 when he joined the General Electric Company in Lynn. He spent a year in the meter test division and at nights attended Eastern Radio Institute. At the outbreak of the war, Al enlisted in the USNR as radio electrician and until March of 1918 operated Naval Stations at Machias, and Eastport, Maine. It was while Al was in Machias that a vision of loveliness passed before his vision but so dazzled was he that he let it escape. (Stick wid me, gentle reader. We'll get wimmen in this story if it kills us!)

In March of 1918, the Navy sent him to its submarine detector school in New London, Conn., and after finishing the school spent the next year installing and servicing these detectors in ships on the East coast. When the war was over, Al left the Navy and returned to Lynn where he worked for the local Electric Company until the Fall of 1919.

About this time our hero begun to hear rumors of a "Marconi Co." who were hiring bright young radio men (he had his first ham station in 1915) so he hired himself to New York and went to work for aforesaid company in its maintenance and repair department. The stories that the sea going operators told him was beyond his credulity, so in 1920 he got himself a license and set out to find out for himself. The next ten years saw him on some twenty-one ships and took him from Schiedamschiedyk to La Boca, and from the Golden Horn to Botony Bay. In this length of time he learned to believe anything! In 1922 he left the sea for a while to serve in Marion (WSO-WCC) taking care of the dynamos, 1923 saw him as shift engineer at New Brunswick (WII), in 1924 back to WCC. While in Boston one summer, the same apparition that he saw in Machias in 1917 appeared again, and while Al tried to capture it, the lovely thing remained beyond his reach. (Now we're getting somewhere, eh?)

His last ship was the Lewis Luckenbach and he left her in San Francisco in October, 1929. Whether the Dow-Jones averages had anything to do with this move, deponent sayeth not, but in any event, he made a dash to the KPO transmitter where Mr. Curtis Peck (our engineer in charge now, no less) weighed him, found him not wanting, and put him to work. When KPO became NBC in 1932 Al spent a brief period in the studios and then came over to KGO where he is today.

Ahhhh—but we're missing something! Yes, in 1932 that vision of sheer beauty appeared and this time Al was not to be foiled! Her name is Winnifred and she is the lovely hostess of Al's palatial home in the Oak Knoll hills.

Al spends a lot of time in second-hand book stores looking for early editions of magazines; again you might find him at home puttering around with his fine ham station (W6JJ); or out in his well kept yard playing with his pedigreed Airdale, "Pat." But most of the time, if you were to peek in his front window, you would see Al, seated at his Baldwin grand piano, dashing off a bit of Grieg or Ravel with his nimble fingers and with his soft eyes he will be taking in a lovely lady cuddled up in the great chair.



The lovely features of Helen Walpole, NBC actress, illuminated by a battery of Birdseye Reflector Lamps for a close-up shot in NBC's experimental television studio.

WHEN experimental television broadcasts first went on the air from NBC's studios in Radio City, engineers tried every known type of lighting to find a means of flooding the television sets with the intense light necessary to place a brilliant image on the plate of the iconoscope. But the light had to be more than strong. It had to be easy to direct . . . it had to be easy to change . . . it had to be efficient.

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KFI-KECA

By H. M. McDonald

BONING UP: There is more to the renewed interest hereabouts in hamming than just a yen to work DX we learn. Most of the boys here have telegraph tickets and those who are eligible desire renewals before the new regulations go into effect, May 1st. When they sat down for a trial work out they found themselves very rusty and have determined to do some hamming regularly so that they will not be caught when next renewal time rolls around. Blatterman, Bruere and McDonald are loosening up their fists preparing to do their twenty-five plain and twenty cipher within the next thirty days. Everett and Seamans recently got their renewals.

TILLER 'N SAIL: During the Southern California Yachting Association's 13th Annual Midwinter Regatta held a few days ago off San Pedro, Curtis Mason crewed on George Bang's 36 foot sloop "Malolo," the winner in the P C class (similar to you Easterner's Herschoff S type). 184 boats took part the final day of the 5 day meet, which was marked with beautiful sailing weather. Raymond Paige's "Prelude" captured the 8 meter event.

Curtis (a Lt. U. S. N. R.) is accustomed to obeying and being obeyed instantly when a command is given. On the first day when ordered to let the spinnaker down, he did so with so much alacrity that it dropped in the brine and dragged alongside the boat. Despite this "slip," the Malolo came in only a minute behind the first boat. On the final day the crew really buckled down and did some sailing though and came in two and a half minutes ahead of their nearest competitor.

Seymour Johnson and Reg Denechaud are also yachting enthusiasts but did not participate in the regatta this year.

The accompanying picture shows Curtis, with his hair down, after a swim in the blue Pacific near Catalina, during an outing on Johnson's MY Seyelen II. No, that's not a night shirt he has on.

PALOMAR MOUNTAIN: Johnson and Curran up with the sun this day and off to the new Palomar Mountain Observatory, up 6000 feet in the rugged mountain country some 100 miles southeast of Los Angeles, to handle a program from there the construction of the world's largest telescope. The mirror for this reflector type telescope is 200 inches in diameter and is being ground and polished at Cal Tech in Pasadena and will be moved up to the Observatory when the job is finished some time in 1940. Cal Tech, W6XKX, keeps regular schedules with the Observatory, W6XKY, on 41 mc.

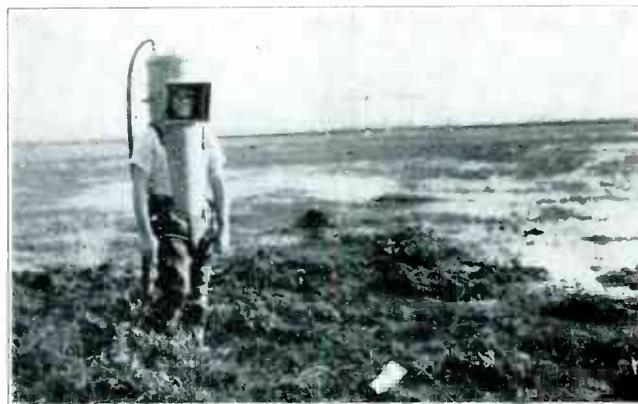
MIDNIGHT OIL: Carl Estep, TE by day, and student by night, at USC; just finished a special course on radio frequency measurements; hopes to get an EE degree eventually. His father has been head of the mathematics department in Los Angeles'

largest high school for the past ten years.

An EAGLE: Rex Bettis made the 390 yard, par 4, 15th hole on Sunset No. 1, the other day in two strokes, the second with a No. 9 iron and in a cross wind. Explanation: Ball hit the flapping flag, then the pole, and dropped into the cup.

ANOTHER ROTARY BEAM: Alexander has just finished erecting a 4x4 40 feet high with his new Premax 8JK type on it. Hasn't had a chance to try it out yet except with his brother in Boston who reports a good signal but broader than heretofore. He's trying to figure out how come.

FISH-EYE VIEW: For many years Lyman Packard, TE, sailed the 7 seas, ostensibly to send position reports but in reality he was searching for mermaids. While viewing the flooded fields from the KFI transmitter building recently his thoughts wandered back to those illusive damsels of the deep and he determined to renew his search for them. So, with an old water



boiler, a piece of plate glass for a window, an old garden hose, and a few odds and ends he constructed a diving helmet. With the aid of a hand pump to supply air, and someone to manipulate it, the diver can descend several feet in the ocean and tramp around the bottom, viewing the many kinds of seaweeds, fishes, and other forms of marine life. And if a tire iron is taken along it will aid materially in prying abalone from the rocks and when properly prepared that shellfish delights any epicure. Picture shows Lyman trying the helmet on and one of KFI's towers in the background.

PING PONG NOW: Ernie Wilmshurst severely scalded his hand and had to give up tennis and golf temporarily. To keep fit he purchased a ping pong outfit and set it up in his backyard and has become quite an expert player. Friend wife likes the game too; Ernie can mind the baby while he plays and she goes about her household duties.

ANOTHER E C O: "Pop" Everett "called his head off" the first three days of the DX Contest; then swapped the family jewels for an electron coupled oscillator and straightway began to get results. Four crystals for sale, very reasonable. In the wee small hours when he thinks we CW men have all gone to bed he's trying out his phone again, grid modulation. Only fair results though, 10 meters very poor here at present.

TRIVIA: Ray Moore and Curtis Mason have built and are on the air with 112 mc transceivers but are not boasting about their achievements yet.

John Hidy finds that the vacuum tube voltmeter he con-

structed is inaccurate on the higher voltages and is tearing it apart to start all over.

Headley Blatterman continued to play tennis, against the advice of "well-meaning" friends who favor golf, and wrenched his ankle and limps a little, in unguarded moments.

Bryan Cole, whose hobby is minerology, is perfecting an ore locator.

Harold Christensen worked a 3 on 10 meter phone the other day and learned that he was connected with the RCA Television Lab at Camden.

NO NEWS: "Any news?" we ask Lloyd Jones, SE, "Nope, same old grind," he replies. Yep, they found the cause of the trouble with his sewer; tree roots had grown into it; put in a new one for \$80. Wouldn't have been so bad if hadn't been necessary to have the foundation of the house repaired too, \$60 more.

Thought he would save a few bucks by building his 8JK rotary beam out of dural tubing and would have, if it hadn't been so flexible that it whipped around in the wind and collapsed after being up only one day.

Profited by that experience though and bought a Premax rotary beam and put it up on a 30 foot 4x4 topped with 20 feet more of 3x3 to a total height of 42 feet. Worked swell. All set for the DX Contest.

Comes down with flu, weaker'n a cat.

High winds visit our fair city; pride and joy antenna and mast crash, a total loss, and smashed a goodly portion of his tile roof.

Came the dawn, and the mailman with a notice from the bank to make good on a \$150 note which he had co-signed for a friend.

Running trembling fingers through graying locks when startled by banging and crashing from without. Wifey reports 7 year old son, Eddie, had given himself his first driving lesson and had driven the car through the garage doors without formality of opening same. Flu worse; relapse.

Sleeps fitfully. Some time later awakens with a start. THE CONTEST! Salvages a couple of pieces of the Premax and puts up a half wave 20 meter flat top on a 30 foot 3x3 and enters Contest.

Twiddling electron coupled oscillator day and night he contacts 57 countries and garners 15,000 points the first four days. Then a power leak lasting two days, two heartrending, harrowing, agonizing, excruciating days. Clears up and he re-enters the contest with vim and vigor and gathered 40,000 odd points before the close, and he smiles once again.

But his joy is short-lived; it's almost the deadline for filing income tax statement. A round table is held in "C" booth and deductibles are exchanged. Ah, that damage and repairs to the house; that just makes it.

"Any news, Lloyd?" "Nope, no news. How about a chance on the National 81X I'm going to raffle off?"

LAMME MEDAL AWARD

The 1938 Lamme Medal of the American Institute of Electrical Engineers has been awarded to Marion A. Savage, Designing Engineer, General Electric Company, Schenectady, N. Y., "for able and original work in the development and improvement of mechanical construction and the efficiency of large high speed turbine alternators." The medal and certificate will be presented to him at the annual Summer Convention of the Institute, which is to be held in San Francisco, California, June 26-30, 1939.

The Lamme Medal was founded as a result of a bequest of the late Benjamin G. Lamme, Chief Engineer of the Westing-

house Electric and Manufacturing Company, who died on July 8, 1924, to provide for the award by the Institute of a gold medal (together with a bronze replica thereof) annually to a member of the American Institute of Electrical Engineers, "who has shown meritorious achievement in the development of electrical apparatus or machinery" and for the award of two such medals in some years if the accumulation from the funds warrants. A committee composed of nine members of the Institute awards the medal.

Mr. Lamme made similar bequests to the Society for the Promotion of Engineering Education and the Ohio State University, providing in the former for the annual award of a medal "for accomplishment in technical teaching or actual advancement of the art of technical training," and in the latter for the annual award of a medal to a graduate of the Ohio State University in any branch of engineering for meritorious achievement in engineering or the technical arts. The three organizations adopted a common obverse for their medals, and each prepared a suitable reverse.

M. A. SAVAGE

Marion A. Savage, Designing Engineer of the Steam Turbine Generator Engineering Department of the General Electric Company, was born September 3, 1885 in Walterboro, South Carolina.

He received the Degree of Bachelor of Science in Electrical Engineering at Clemson College in 1906. After graduation he obtained experience, while employed at the General Electric Company, as a student engineer in eleven different departments. In 1909 he was transferred to the Turbine Generator Section of the Alternating Current Engineering Department at the request of Dr. H. G. Reist. In 1923 he was placed in charge of the Turbine Generator Section and became Designing Engineer of that department in 1931.

A Coffin Award was bestowed upon him in 1932. A portion of the notation on that Award stated, "Mr. Savage has shown outstanding engineering ability in design and development of large steam driven generators. His designs have done much to permit trebling of the size of turbines in a comparatively short time. This growth has resulted in problems and risks of increasing magnitude. The excellence of these generators and the freedom from complaints testify to the quality of the job that he has done."

At that time he had developed and built the two most powerful generators in the world now running in the Hudson Avenue Station of the Brooklyn Edison Company. These generators which are rated 200,000 kva—16,500 volts required the solution of many new problems. They were double the capacity of any electrical machine in service at that time.

During the past four years he has directed the development and novel engineering associated with the building of 28 large turbine generators which are cooled by means of hydrogen. These generators will have a combined rating of more than 1,650,000 kva. Eight of them are now completed and in successful service.

Technical papers written by him have appeared in the General Electric Review, Journal of the American Institute of Electrical Engineers, and one was presented at the World Power Conference in Berlin. Numerous patents relating to the construction of turbine generators have been awarded to him.

The honorary degree of Electrical Engineer was conferred upon him by his Alma Mater, Clemson College.

Mr. Savage is married and has two daughters.

He is admired by his associates for his fortitude and the very courageous spirit which he has so often displayed when engineering difficulties seemed great.

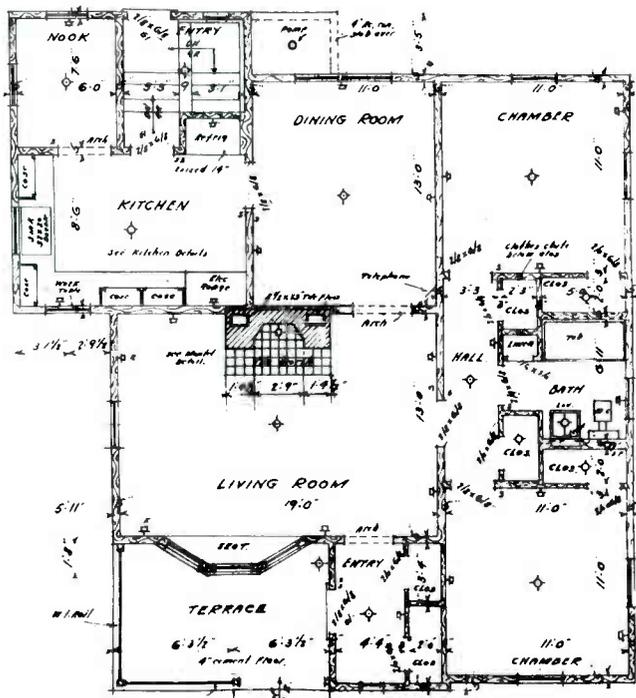
DENVER

continued from page 5

State Health Board would not pass it because aerogenes, bacteria present in first two feet of top soil were present. These evidently were introduced by drilling tools, casing, etc., and were killed by several pounds of chlorinated lime. After pumping several hours, the water passed inspection, showed 6 grims of hardness compared to Denver water and tastes slightly of manganese sulphate.

The sewage disposal plant consists of a septic tank and cess-pool located quite a distance from the well.

To have a fireplace that does not smoke is seldom realized by those who buy houses already built. Few people probably realize that fireplaces can be built which will not smoke if they are



designed according to several sound principles explained in Farmer's Bulletin 1649 available from the U. S. Printing office. Roy's fireplaces actually do work and they don't smoke either. An important reason why they work is that the chimney is located in the center of the house, hence all sides are equal in temperature, and there are no down drafts and eddy currents in the flues and the chimney is high enough that it has a good draft. The minimum recommended height is 2' above the roof

and if trees or other buildings are nearby it should be even higher. Roy's tallest flue extends 2' 10" above the roof and the draft is so strong on the furnace flue that it pulled his hat two feet into the flue when he was demonstrating it. The following pointers about flues and fireplaces may be of interest. Round flues are preferred to other shapes because the smoke can spiral without setting up eddy currents. Oblong flues are next best. Each furnace or fire place should have its own flue. Some contractors insist upon putting two fireplaces on one flue, and some get away with it, but the lower one usually smokes. The furnace should be certified as to the maximum stack temperature which should not be over 600°. The flues should be tight in spite of what a brick layer will say about tile flues that are never smoke tight.

The cross section area of lined flues should not be less than one-tenth the area of the fireplace opening. If unlined, the proportion should be even greater. No wonder Santa Claus is reported to have come down some chimneys!

One worth while feature in the laundry is the location of the floor drain. The drain is to one side of the laundry tubs instead of just where the washing machine should sit. The floor is level where the machine sits so it doesn't have to be tied in place.

The bath room is finished in tempered masonite which has been grooved to imitate tile. A baked on enamel finish makes it look like tile but not so cold. The cost installed was about the same as linoleum.

Mrs. Fell designed the kitchen and it has about three times the cupboard space found in most homes. Work table top and floor are linoleum.

Large closets with lights and enough of them in another advantage of the house. Numerous electrical outlets in the right places will do away with the extension cord nuisance and simplify the "rearrange the furniture" complex.

The walls are insulated with gypsum rock sheathing with aluminum on the inside for heat reflection. Lap siding was used on the outside, but Roy says he would rather have asbestos siding which is hard finish, more fireproof and does not require painting. The shingles are cedar and are expected to last the life of the house. Composition shingles usually have to be replaced every sixteen years. Properly laid wood shingles are second only to copper sheet.

The most important things to remember when building a house is that it is wise not to change the plan once it is started. Have everything designed the way you want it and build a model to visualize it. Architects do not give much advice, they do their best work on a drawing board. They are expected to supervise construction but they do not dare to be too critical about materials and workmen lest they get a reputation for being hard boiled and lose business because the contractors will have to bid higher to do a better job. Roy says it is better from that standpoint to furnish materials and hire the labor to do the work especially for the concrete construction where skimping is not so noticeable.

The cost of the place is another interesting item. The ground cost \$600.00 and was used for security on a \$4,800.00 FHA loan. Approximately \$600.00 is expected to be spent for landscaping and fruit trees. The place is appraised at about \$6,500.00 landscaping included. The well cost \$400.00, plumbing and sewage disposal about \$700.00 including labor.

Taken as a whole, building a house as Roy did—especially letting contracts and supervising construction was an awful big headache and he says he's glad it's over. The money saved was well earned, but at least he does know what is in the place and that it is built well.

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SCHENECTADY

By H. C. Mosher

Last month Bernard Cruger, Al Knapp, and Ray Strong spent a day in New York City visiting the Model Railroad Exposition. The show wasn't all they thought it should be, so most of their time was spent at NBC. At lunch they met Gene O'Hare, a WGY commentator, from Albany and made a date to meet him on the 11 p. m. train for their return home. About 6 p. m, with nothing to do, the boys thought they better take the next train home. They made the grand rush for a streamlined coach with a guilty conscience about leaving Gene to look for them later. No sooner were they in their seats when in walked Gene with the same thought in mind. The boys looked at Gene and he looked at them. Finally they all began to laugh as the train started north.

Isn't it funny how these country boys can find nothing to do when they get in a large city like New York!

Ray Strong stays at home much of the time to keep the triplets interested to prevent their catching the numerous diseases which have been going the rounds. At the same time he is able to keep up his photographic work.

H. E. Wheeler was robbed of the last few days of ice fishing for this season. He caught a cold which developed into the grippe and confined him to his home for about a week.

Pete Narkon, who has a craving for wood-working, is collecting tools and machinery for his shop. It is also rumored that he is going into the live bait business. About two months ago, you will remember, he, Wheeler, and your correspondent took a trip to Lake Champlain. There they bought a quart of "Hunts," a popular live bait used in that section. Of course we did not use them all and what remained were brought home. Mose kept them until they made another trip to Saratoga Lake, where the other fish didn't seem to like them either. Since that time the bait have made several trips to various places with no appreciable decrease in numbers. As a result Pete still has them and now that the season is over doesn't know what to do with them!

W. J. Purcell took a half day off to turn down some adjustable mounting sockets for our recorder heads. He did an excellent job too. Now we can level up the cutting head with the face of the disc. Bill was getting his work-shop nicely settled in their new home on Van Antwerp Road, when Mrs. Purcell met with an accident which left her with a sprained ankle. During the illness Bill spent much of his time entertaining her, but now that she is better he will have more time for his hobbies. If we have an early spring Bill will be out swinging at the old golf balls.

B. W. Cruger was going to make a few changes in his new home but when he got under the surface he learned he would have to make many changes. Some of the old construction methods didn't quite meet with Crug's approval so when he started one alteration he was likely to take down the whole wall and rebuild it. He managed to get through the winter without freezing out the Mrs. At any rate now they have things about as they want them.

Paul Adanti is still working on that miniature railroad system for Dick. Ha! Ha!

Ken Durkee sticks to his music of which we can say little as Ken is so shy we can not get him to demonstrate his ability to perform on the piano.

Between his field pick-ups and studio work Al Knapp tried

to nurse his Irish Setter through an illness. We are sorry to report the intestinal infection was too much for them. Too bad, Al. We wish you better luck next time.

Silvio Caranchini and his bride are keeping the roads hot between Schenectady and the old home town of Barre, Vt.

It was during the month of February about 20 years ago that your correspondent first became interested in amateur radio. Now each time February rolls around he has a craving to do some amateur work. This year he celebrated by rebuilding his transmitter with the latest equipment so it will put out a reliable 50-watt signal on all bands from 3.5 to 28 Mc.

"The Squeals," representing the control room in the WGY bowling league, are on their way to the top of the line. At the start of the season they were at the bottom. In spite of the fact that they are seldom able to bowl with a full team, they have climbed to a tie for third place with the "Ripples," representing the Leighton and Nelson advertising agency. Here are our averages:

Narkon	148
Wheeler	144
Caranchini	141
Mosher	137
Strong	133

WGY celebrated its 17th anniversary on February 20 with two special programs. Monday afternoon Bill Meenam, head of the WGY Press Department, used his usual "Scissors and Paste" Program time to give a party in honor of the occasion. On a table in the center of Studio "C" was placed a large birthday cake, baked as a model of the new WGY building.

About twenty-five members of the staff were present. Mr. Chester H. Lang, manager of the General Electric's Publicity Department, and Mr. Kolin Hager, manager of WGY, cut the cake. As each guest received his piece of cake he read a few lines of poetry describing his duties. In this way the listeners met members of the staff who normally remain backstage in radio.

At ten-thirty that night a special anniversary program was broadcast by WGY from the large auditorium studio in the new building. Appearing with Mr. Lang on the program were Martin P. Rice, former manager of General Electric's Publicity Department and first director of General Electric radio activities; W. W. Trench, Secretary of the General Electric Company; and Kolin Hager, the first and present manager of WGY.

Early assurance of television programs was made by Mr. Lang during a roundtable discussion of the early days of WGY, particularly the station's participation in Dr. E. F. W. Alexander-son's work in television.

Mr. Lang announced that today, 11 years after Dr. Alexander-son produced the first radio television drama, the General Electric is about ready to provide television entertainment.

The studios will be located in WGY's old quarters in the International Building. A large "viewing" room will be provided where visitors may see the televised program or, by looking through a large window opening into the studio, see the performers while they are being televised.

WGY's anniversary program also brought to the microphone two veteran performers, Mrs. Edith Ennis Clute, soprano, and Edward A. Rice, violinist.

TELEVISION

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elements are so placed that they can distinguish objects separated by an angle of only one minute of arc. This means that the eye can distinguish two illuminated points which are separated from each other by only one one-hundredth of an inch, when the points are viewed from a distance of about three feet. It is this detail-perceiving ability which makes the eye so indispensable to us in our every day existence, and it is likewise the ability which makes television by far the most difficult of all forms of intelligence communication.

One of the direct results is that the eye can use, as a first approximation, about 200,000 separate items of information in every picture it sees. If the picture contains more detail than this, the eye is especially well satisfied with the result, but if the scene contains fewer "picture elements" than 200,000, and if the subject calls for even a moderate degree of detail, the eye says "nothing doing," and suggests we all go to the movies instead. So the basic television image has been set up, according to the R. M. A. proposed standards, in such a way that it contains a maximum of approximately 200,000 elements of light and shade.

This is the root of the whole television evil. Because of the great number of picture elements, it is not feasible to send information about each one over a separate circuit—imagine 200,000 circuits from the broadcast station to every receiving point! So the artifice of scanning has been called upon, that is, the information contained in the 200,000 picture elements is sent successively over a single circuit. The picture is, in other words, sent on the installment plan. This discussion of the picture requires that it be reassembled at the receiving end, and this reassembling must take place so rapidly that the eye sees the whole picture at once. In practice this means that the whole picture must be sent in about 1/30th of a second. Accordingly, the 200,000 picture element impulses must be sent successively in the same length of time, and this figures out to be at a rate of 6,000,000 impulses per second. On the average these impulses are half positive and half negative, with respect to the average signal. Consequently we can use one cycle of the communication current for two picture impulses, and we arrive at the conclusion that the transmission circuit must carry a signal current of 3,000,000 cps. which is 3 megacycles. This requirement exists if the picture actually contains the maximum amount of detail of which the system is capable. If the picture has important features which are not so detailed as this, then lower frequencies come into play. If the picture is completely black or completely white, frequencies of 60 cps are important. Between these two extremes of 60 cps and 3,000,000 cps, any intermediate degree of detail may exist, so the communication channel must be capable of carrying a signal current of any frequency from 60 cps (preferably lower than this and even down to and including direct current if slow changes in the average brightness of the pictures are to be reproduced) on up to 3 mc. This frequency range, it must be remembered, takes in the whole field of electrical engineering (let alone communication engineering) as it existed up to about 1925.

The television system, in other words, must be more or less "flat" from 60 cps, or lower, up to 3 mc. Moreover since the important quantity to the transmitted is the waveform of the video signal, it is important that the system be flat not only in regard to the amplitude of frequencies within this wide range, but also with regard to their relative phase displacements. All in all it is a picnic, with ants.

Actually at present, the new technique of vestigial sideband transmission standard in this country allows the video range of frequencies to extend beyond 4 mc, with 4.5 mc. as the practical

limit of the effective modulating signal.

What does this enormous video range mean? It may be translated approximately into terms more or less generally used by audio and radio frequency engineers. To the audio engineer it means that a good audio amplifier, flat to 15,000 cps say, may be extended to make a good video amplifier, only by increasing its frequency range 8 octaves higher than the audio frequency limits. It might well be imagined that the gain of such an amplifier would rapidly approach the vanishing point. And so it does. The best video amplifying tube (judged by the ratio of transconductance to self capacitances) is the 1852, a comparatively recent member of the tube family. It has the usually high mutual conductance value of 9,000 microamperes per volt, and an amplification factor of 6750 times. Such a tube, in a video amplifying circuit, is doing well if it can cough up a gain of ten times (0.15 per cent of its amplification factor) over the video range up to 4.5 mc.

Illustrations close to the radio-frequency engineer are not hard to find. To modulate the final stage of a transmitter, grid modulation is used, and several hundred volts of video are required. To obtain these several hundreds of signal volts it is necessary to apply as much as 5000 volts of d. c. to the plates of the modulator tubes. Then when the final stage is nicely modulated, three-quarters of one of the sidebands must be cut away at once, to avoid over-jumping the available channel space. As one man in your own organization has said, "It's heart-breaking."

Getting an antenna to present a uniform impedance over the sideband range in the transmitter output is no cinch either. Perched on top of the Empire State Building is a collection of four Indian Clubs that would have made Jules Verne envious, all for the purpose of getting this flat impedance characteristic. And inside the tower is a sideband filter that would give a plumber bad dreams. Then the signal, once radiated, is forced to contend with noise at least 30 times more serious than in sound broadcasting, because the frequency range of the modulating signal is 100 times as wide as it is in the audio case. A one millivolt signal is fairly luxurious in sound broadcasting. In television it is generally considered to be the minimum acceptable signal—a luxury signal, if there is any such in television work, would be nearer 0.1 volt.

The receiver problems are equally imposing, with the addition that costs must be kept below the point of customer stupefaction and that 25 or 30 tubes must be grouped within the cabinet in a manner not too baffling to the average serviceman.

These are engineering problems, but none the less serious are the economic restrictions imposed by the limited range of ultra-high frequencies, by the lack of suitable wire facilities to connect television stations into networks, and the fact that no advertiser will sponsor a program without an audience (while the audience cannot be assembled without inexpensive receivers, and a supply of programs both plentiful and pleasing). It is no wonder that the future has everyone, even the stock salesman, guessing.

If television goes over, then what?

At the risk of over-optimism, we can assume for the balance of this discussion that television is destined for success this year in the New York area. The success will be judged by the number of television receivers sold, by the number of program hours scheduled, by the seriousness of the competition between the two major program sources, by the effect of television on sound radio and the movies, by the comments of professional critics, and possibly by the willingness of certain organizations to invest in sponsored time. If the experiment in New York is a success, it is a foregone conclusion that television will be offered almost at once in Chicago and in perhaps five or six of the other larger population centers. When that day arrives, there will be plenty

of jobs waiting for men able to fill them, and if present indications are trustworthy, there will be comparatively few men trained to fill the jobs.

It is difficult to predict with accuracy just what these jobs will involve, and how many of them will be available, but we can extrapolate from the experience of the present with some degree of assurance. Every live talent program will involve two, and preferably three, camera operators. Each camera must be attended by one or two technical assistants. There must be at least one man whose sole responsibility is illumination of the studio, and another to control the microphone boom. In the control booth two engineers must be on the job for audio and video monitoring, both of which require techniques vastly different from those of conventional sound broadcasting. The main equipment room will require the full time service of perhaps two men for maintenance and general operation. There must be a film studio, and possibly also a third studio for close-ups, miniatures, and special effects, all with personnel nearly equal in numbers to that of the live talent studio. The transmitter will require about the same number of men as does a sound broadcast transmitter, but with video and u-h-f, rather than audio and r-f, background. This is the bare minimum, the skeleton crew. If a large number of hours (say 10) are to be scheduled each week, present experience indicates 20 times as much (200 hours) of rehearsal may be required each week. Working each shift 40 hours a week, this schedule requires no fewer than 5 complete duplicate shifts.

Add to this fact that for the present each station must originate all program material, except that provided by film, it all points to one conclusion: a television system at all comparable to the sound broadcasting system as we know it today can be built up only with a personnel two or three times as large as that employed in an equivalent sound broadcasting system. It must be remembered that it may be many years before television stations are scattered generally throughout the country. Some predict it will be 10 years before the 96 primary population areas (55 percent of the population, 6 per cent of the land area) are covered by adequate television service. But there is no harm in taking the long view of the matter, since it is very likely that those who are prepared to enter the field now will have the best chance of capitalizing on their ability when the opportunity offers.

It seems therefore to be the better part of wisdom to keep abreast of developments in the television field, if only as an investment in future possibilities. Even if the future is discontinued, there is a fascinating group of new techniques being developed which should excite the interest of any technically trained man. The hobby possibilities of television have not been stressed in amateur radio circles because of the high degree of specialized knowledge required, not to speak of the serious drain on the pocketbook if really worthwhile equipment is to be assembled. But I know of one sound engineer in a broadcast plant who has built and put in operation a complete video signal-generating system, of the monoscope variety, and now feels prepared to go ahead and build a receiver! Many others have found it possible to build a receiver, using small cathode-ray tubes and simple components, for a cost well under a hundred dollars, and with surprisingly successful results.

Having gone through the process myself, I cannot recommend too highly the procedure of actually building the u-h-f, i-f, video and scanning circuits which go into a television receiver. No other approach can give familiarity with fundamentals in so short a time, nor develop confidence so surely in ability to master the video techniques. It is true that equipment satisfactory for use as an entertainment source in the home (which means a nine-inch cathode ray tube or larger) cannot be assembled at the

present time for much less than two hundred dollars, but for that matter no factory-built receiver of equivalent quality can be bought for that amount. Of recent months several really worthwhile kits have appeared on the market, which make assembly of a receiver very simple indeed, but I would advise against making the process too simple, since the educational value is thereby decreased. Test equipment is required, but with patience the ordinary signal generator, v-t voltmeter, oscilloscope and beat oscillator available in most service shops can be used to line up the circuits. And most servicemen will be only too glad to cooperate for whatever information they themselves can get out of the process.

For those who like to study from books, and who prefer a theoretical background, there is a wealth of material already available. The following study outline may be useful. It includes subjects which are fundamental to a thorough training in television engineering.

First: A good understanding of practical illumination theory, especially as it relates to the television camera. A good book is "The Scientific Basis of Illumination Engineering" by Parry Moon.

Second: A good review of signal theory, including the importance of phase and amplitude responses over an extended frequency range in preserving the waveform of a signal.

Third: A study of the methods of video amplification. Recent issues of the RCA Review have contained very worthwhile articles on this subject by Preisman, and by Seeley and Kimball. If you are somewhat hazy about ordinary amplifier theory, go back to Terman and start from scratch.

Fourth: A study of the scanning process: This includes the formation, deflection, and synchronization of electron beams, and should be preceded by a study of the geometry of interlaced scanning patterns. Maloff and Epstein's "Electron Optics in Television" is a good treatment of electron optics. "Television" Volumes I and II (RCA Institutes Technical Press) has good accounts of the scanning process.

Fifth: A review of u-h-f propagation characteristics, methods of generating stable carriers at 45 to 105 mc. and methods of detecting the signals at the receiver. The A. R. R. L. handbook has an interesting chapter on this latter item.

Sixth: A study of the problems of amplifying, at radio and at intermediate frequencies, a modulated carrier whose side bands extend over a range of some 4 mc. Very little material on this subject is available in textbook form, but can be obtained from periodicals.

The only serious textbook published to date which is directly concerned with television (outside those already mentioned) is "Television Engineering" by Wilson (Pitman). This book is expensive, and would be consulted in a library before being purchased. It contains very sound treatments of many fundamentals, but it is weak in its descriptions of electronic methods, which are of course, the whole substance of modern television.

By far the most valuable source of current information on television developments are the periodicals. The Proceedings of the I. R. E. has several outstanding reference articles (most of which have been reprinted in "Television" Volumes I and II). Electronics has made a serious effort to keep its readers up to date, and has already published (page 47 March Issue) a bibliography of some 40 articles on the subject which have appeared in its pages. Communications has recently begun the pub-

lication of a special series of articles on video engineering. Among the foreign publications should be listed "Television and Shortwave World" for news and expositions ranging from the frankly popular to the seriously technical, and of course "The Wireless Engineer," which is equivalent of the I. R. E. Proceedings in England.

A factor not to be neglected in education for future opportunities is the special course, specifically devoted to television engineering, which may be attended at night. There are several excellent sources of this type now in progress in New York City. They are expensive (the cheaper fly-by-night courses are seldom a good investment) but if seriously pursued should return good value for the expenditure. In choosing a course, discuss your qualifications with the instructor carefully, and honestly, so as to be sure of getting started at the proper level.

In conclusion, it must be emphasized again that television, including the opportunities it may hold for radio engineers, is about to be weighed in the balance of public favor, and its future course will be determined largely by the quality of the programs, and the technical excellence of their transmission during the first few months of public service. From this point of view it appears that a very great responsibility rests on those who have duties in the television division of the NBC. The eyes of the industry will be fastened upon this group, in more ways than one. To these men go our best wishes for every success in television's "first season."

Hollywood Show Review

By Rob

Have received favorable comment on "Show Review." So collared Eddy Miller the other night and quizzed him on a couple of the shows he runs. The following is what we gleaned in dirt, Hollywood gossip, or what have you.

MGM—Maxwellhouse Coffee—"GOODNEWS"—Studio "D" (large) Hollywood Radio City—Thursdays—6 to 7 P. M. PST.

Agency—Benton and Bowles.

Engineer—Eddy Miller (Ex NY) With Maxwellhouse "Showboat" and "Goodnews" for the past six years.

Producers—(Package show produced by MGM) Louis K. Sydney, in charge MGM radio department—Don Cope B and B—Joe Thompson NBC—Phil Rapf, Same Moore, Morey Amsterdam, MGM writers.

Orchestra—Meredith Wilson and thirty men (semi-concert). Rehearsals—

Wednesday 9A—130P Orchestra.

Wednesday 130P—Mid. Cast, Comedy spots, dramatic spots, rough timing, (2 engineers some Wednesday nights—2 studios).

Thursday 1030A—Orchestra, chorus, singers, all music.

Thursday 2P—Cast (Work with orchestra, cues, seques, etc).

Thursday 3P—Dress Rehearsal.

Thursday 4 PM—Cleanup Rehearsal—Cuts, Spots, Etc.

Thursday 6-7PM—On the Air.

Eddy sez: Swel show to work . . . Nice gang . . . much direct movie atmosphere . . . entire cast, producers, writers, etc. are movie people . . . lots of movie methods, gags, lingo, float around stage and control booth during rehearsals . . . every MGM star has appeared on the show at some time or other . . . "Just like you and I," sez Eddy . . . bigger they are the easier they are to work with . . . take direction easily and cheerfully . . . show their temperamental side more in regard to material or scripts provided for their parts than anything else . . . however they consider this just good business in the protection of their

reputations . . . Bob Young is the regular MC . . . Frank Morgan fills the comedy spot . . . is just as screwy as he sounds . . . has the gang in stitches half the time . . . can ad lib tremendous comedy all day long . . . Gable, Taylor, MacDonald, Barrymore, Lombard, Crawford may all appear on a single show . . . at such times tickets are next to impossible to obtain . . . Audience goes into Ohs and Ahs at each appearance of famous stras . . . to relieve them of this, Warren Hull, actor announcer on the program, kids and gags with each star as he introduces them to the audience before curtain time . . . Crossley rating of MGM averages about 24 . . . occupies the middle spot in the well liked Thursday evening threesome . . . Vallee . . . MGM . . . Kraft . . . Typical of movie showmanship are special lighting, stage sets, funny costumes and pie throwing for comedy spots, slides thrown on walls or a screen for dramatic "mood" effects . . . (It may be said however, that in new Radio City, practically no elaborate stage sets are permitted such as were used at our old theaters for MGM and Packard) . . . GOODNEWS came to Radio City from the 1800 seat El Capitan theater on Hollywood Boulevard . . . The El Cap had been leased and equipped for radio by NBC more than a year ago to house the MGM show . . . Although the theater was considered excellent acoustically our new studio "D" WOWEID both agency and Eddy by its perfect all around setup . . . Acoustics better than anything Eddy has ever worked with . . . plenty of room . . . freedom yet privacy for the stars . . . each with his own dressing room . . . Only disappointment was the 1500 seat reduction in audience and tickets . . . Studio "D" is one of the two large stages . . . Eddy uses a maximum of eight mikes for the show . . . these include all applause, announce, and special effect mikes . . . Six required on the average . . . Straightforward orchestra setup using one 44B . . . Meredith features full concert arrangements without many difficult solo spots . . . sometimes a separate mike may be needed for piano breaks . . . twelve man chorus uses special half round stepped platforms and have their own 44B . . . vocalists use cast mike out frontstage . . . The show is not a difficult one to mix with the possible exception of Baby Snooks . . . Snooks (Fanny Brice) stands in close to the mike when working with "Daddy" . . . but every line or so lets go with a terrific cry or bellow . . . Poor Eddy can only try and catch each one on cue or resort to dropping the heck out of his average level . . . He tries the cranking method by taking half a turn out of the main gain on cues marked in his script like bomb explosions . . . red pencil diagonal marks all the way around the words or crys involved . . . But Eddy says his batting average isn't a hundred percent by any means cuz Snooks often interprets the script in her own individual way when show time comes along . . . Eddy has tried having Snooks work out of mike, etc. but the producers don't think she sounds quite as good as when the ribbon hits the far side of the mike housing . . . so Eddy prays as we all do now and then . . . that all the volume limiters at the transmitters are in working order . . . So much for MGM but we will add that the show is a sure fire autograph hunter show and even Eddy finds himself besieged if he sticks his nose out of the booth or building . . . With Vallee in "C" and Bing Crosby in "B" our entrances are mobbed on Thursdays by the packs of Hollywood autograph hunters . . . Between Jimmy, our cop, and the pages, most of the stars are smuggled in and out quite effectively . . . Some of the happy-go lucky stars will go outside between rehearsals and sign up a lot of books . . . others stop their cars on their way in or out of the parking lot and tell the gang, "I'll sign just five now, I've got to hurry," in that way they don't incur unnecessary wrath . . . We have just started a special back way out of the lot . . . attendant operates a rear lot gate for the big names . . . won't be long until the mobs finds it out . . .

CHASE AND SANBORN—Studio "A"—Sundays 5 to 6

P. M. PST.

Agency—J. Walter Thompson.

Engineer—Eddy Miller (Last 6 months—Wetteland till he transferred to MC).

Producers—Cal Kuhl JWT—Myron Dutton NBC—Dick Mack writer.

Orchestra—Bob Armbruster and thirty men (Concert).

Rehearsals—

Saturday 12N to 12 Mid. Orch.—Cast—Rough dress 10PM.

Sunday 11A—All Music through each number twice.

Sunday 130PM—Comedy spots rehearsal (Bergen).

Sunday 230PM—Dramatic rehearsal.

Sunday 330PM—Cue rehearsal, cleanup spots.

NO DRESS REHEARSAL

PRINTED CALL SHEETS FOR EVERYBODY

Sunday 5 to 6PM—ON THE AIR.

Eddy Miller sez: Bergen has Charlie there for all rehearsals . . . goes through his complete script with choice ad libs whenever asked . . . Bergen stands out front (Unidirectional mike) holding Charles on a high chromiomed stool . . . 77A microphone permits easy interviews with other cast members while all face the audience . . . Mike used at low height to give full view of faces, etc . . . McCarthy comes in a large airplane luggage suitcase similar to a trombone case . . . Sometimes he will holler "Let me out," "Let me out," before Bergen opens the case . . . Bergen takes Charley out . . . brushes his hair a bit . . . puts on his hat . . . straightens his tie . . . brushes his clothes a bit . . . all the time letting go a most listenable dialogue . . . Bergen a swell egg . . . quiet . . . keeps cast laughing by walking around talking to the dummy during rehearsals . . . Ameche always tops . . . cheerful, full of pep . . . He and LaMour have a great time kidding and fooling on the stage . . . Nelson Eddy and Donald Dixon are also great at the horseplay . . . hence much fun is had by all when things are going smoothly . . . Bergen gives the curtain speech and has the audience in the aisles before show time . . . Show works pretty well to the studio audiences . . . this keeps Eddy particularly on his toes . . . Studio "A" is the other large stage and was used with the full stage at first but in the interest of a more intimate stage and audience setup only the front half of the stage is used now . . . The dividing curtains are pulled . . . the orchestra setup split . . . to correct for added drapes several plywood hard flats are setup back of the orchestra . . . Mikes used are Orchestra, soloist, cast, Bergen, soundeffects, chorus, 2 applause, and sometimes an extra cast mike for effects . . . Eddy says it probably isn't a perfect radio setup but it is the way it evolved and the results are shown by its Crossley of 46.8 . . . Being such an important show and so much in the public eye . . . Eddy says production is sometimes slowed down by many visiting dignitaries . . . Eight is his limit in the control booth as any beyond that seriously affect the acoustics and completely absorb the highs . . . the show has several producers, three script girls, writers, etc., all these usually want to be in the booth . . . Oh me, it's the same on all big shows, but Eddy thinks it might be a little worse on this . . . and Eddy certainly isn't one to complain . . . about as nice and easy going and capable an engineer as ever hit these shores . . . With everybody wanting to see McCarthy the show is far ahead of all others in ticket requests . . . then with a few friends of artists, etc. at the last minute we find people hanging from the ceiling and sticking out of doors and such . . . Again in all this confusion the mixer has to be on his toes . . . And Eddy always is . . . Special effects include special spot lighting, drape effect in front curtains, special footlight and border lighting, etc . . . The audience is admitted as is customary about twenty minutes before showtime . . .

We want to make these show reviews of interest primarily to operating engineering personnel. If we can answer any par-

ticular questions on a show or improve in the coverage of the subject in future Reviews we would appreciate a note addressed to the JOURNAL in Hollywood.

CALIFORNIA BEACH

March 5th . . . Beach weather again. Thought some of you in Chicago, New York, Denver might like to hear a bit about a California beach in the early spring. It isn't Miami and the gulf stream or Coney Island in August. You can count the sun bathers this morning on toes and fingers and not a person in the surf. The sun is boiling but a cool on shore breeze, that rates "Fresh" in a weather report, keeps one in a well sheltered spot.

Am writing this lying up next to the great wooden sea wall that keeps the Pacific from inundating the Marion Davies summer Palace at Santa Monica. A short stretch of beach along here was dubbed "NBC Beach" last year by many NBCites. There's a durned Japanese gardener across said sea wall watering flowers and every now and then this sun bather and notebook get drowned in a dog gone cold shower bath. Thought he had gone away, awhile ago. Oh me.

No ocean for me today. Water temperature 55°, so thoughts wander across there to Hawaii that has swimmable water the year around. Gee, to be at Waikiki right now. However, right here the sun is hot, perspiration flowing . . . sky is dark blue . . . Ocean deeper blue . . . Catalina clear today, 40 miles to the South and West . . . Couple of fishing boats on the horizon . . . Hulk of a four master, now a drop line fishing barge, anchored off the yacht breakwater to attract the halibut and perch fishermen . . . North along the coast, the once deep green, but now denuded rust brown hills of the Malibu-Hollywood range stand scarred by fire . . . A good morning for surf riding but no boards are out . . . Guess the kids still in school . . . Breakers are spilling just right for a long oblique ride standing up . . . Surf is not good for riding if the waves break in a single mile long crash . . . Kids ride even in the coldest water cuz their big balsa planks rarely spill a rider and little contact is required with the water in manouvering a board . . .

There's a surf fisherman a hundred yards down the beach. Reeling in for all he's worth. Looks like he might have a bite. Nope sea weed (Kelp). Rebaiting with muscles, wham, out she goes. He puts his pole in a trick rigging stuck in the sand and sits down again. That's right where we swim, hope he doesn't leave any hooks out there.

Oh Oh, a honey coming along the beach. Blonde, must be a movie actress by her poised walk. Half the Hollywood stars live in this half mile down to the next jetty. Nope don't recognize her.

The gold eagles topping the flagpoles along here have certainly withstood winter and salts corrosive affect. They shine like the US mint. Don't think anybody could climb up there to polish 'em either. Wonder what they're painted with. Maybe they're real gold. This place cost several million dollars.

Wish Fergy was down here with his beach ball, so we could get a little exercise. Guess he's probably doing all right down at Palm Springs. Lucky guy, but it couldn't be any nicer or hotter than it is here today.

Couple of planes testing up there this morning. Only a couple of miles from the Douglas and Northrup plants. We always see the latest flying around. Yep, that's the new high winged DC-5 and a Lockheed 14 playing around. All the plants flight test each ship for an hour after she comes off the line. Ground work is so perfected today that practically no adjustments are necessary after the test hop.

Hour later: Gosh went to sleep. Gotta go now, rehearsal at two.

Chamberlain Speech Climax In NBC European Coverage

American radio listeners were kept abreast of sensational international developments as the National Broadcasting Company continued its extensive coverage of Germany's absorption of Czechoslovakia and its effects on the nations of the world.

From the time Chancellor Adolf Hitler entered the former Central European Republic, NBC followed the swiftly moving events through international broadcasts from the principal European centers. From the proclamation of Hitler's policy towards the former republic these trans-Atlantic programs continued over NBC, reaching a dramatic climax in Prime Minister Neville Chamberlain's first official utterance of Great Britain's attitude toward Germany.

Hitler's proclamation read by Foreign Minister von Ribbentrop, was the first and only broadcast to come from Prague, capital of the former Czechoslovakian republic. Other programs that NBC planned to bring to its listeners were canceled and a speech by Emil Hacha, last president of the republic, which was scheduled by NBC for March 18 also was cancelled in a brief message from Max Jordan, NBC European representative, that stated simply: "Hacha eighteenth cancelled."

The Hitler proclamation was read from Prague by von Ribbentrop early on the morning of March 16. It announced establishment of the protectorate over Bohemia and Moravia, former provinces of Czechoslovakia, and outlined the policies governing them. The effect of this proclamation were felt in world capitals the next day and NBC hastened to bring these reactions to its listeners.

In a broadcast from Warsaw, Poland, Tadeusz Lutoslawski correspondent of the Chicago Daily News, revealed the attitude of the Polish government. He stated that Poland would continue to remain aloof in international politics in an effort to avoid the mistakes which the Poles feel the Czechoslovakian government had made. He pointed out that in a dangerous international situation Czechoslovakia had made the error of taking sides.

This program was followed by a broadcast from London and Paris during which NBC listeners heard the attitude of the people and press of England and France. Wilson Broadbent, diplomatic correspondent of the London Daily Mail, declared that Prime Minister Neville Chamberlain's speech later in the afternoon represented the most important decision of his career and declared that Chamberlain's premiership might come to an end if he failed to take a firm stand against Hitler. He said there was talk in London that Lord Halifax might be chosen to replace Chamberlain.

From Paris the NBC representative, Paul Archinard, stated that all French papers were unanimous in declaring that the government could no longer put faith in any future promises of Adolf Hitler. Many of the newspapers, Archinard said, looked upon Germany's seizure of Czechoslovakia as "only the beginning" and called upon the government to mobilize industry and take necessary military steps.

This broadcast was followed by Chamberlain's declaration before the Birmingham Unionists Association in the Town Hall where he served as Lord Mayor twenty-three years ago.

ON THE CUFF

AL and LEE REISER, NBC pianist—conductors and piano team, are related but are not brothers as most people believe . . . they are cousins . . . GLENN DARWIN, popular NBC baritone, declares that singers do not make composers . . . A singer is trained along interpretative rather than creative lines,

says Darwin . . . ELAINE STERNE CARRINGTON, writer of the NBC serial "Pepper Young's Family," finds further creative outlet as an accomplished interior decorator . . . Her Long Island summer home—one of the show places of the Atlantic seaboard—is her own design . . . "MR. KEEN, TRACER OF LOST PERSONS," found the fan mail of his NBC serial stepped up to a new high by the Coster-Musica story . . . BETTY CAINE, star of Madame Courageous, says that the hardest job she has had in a long time was recently trying to convince three other women on an airplane trip that she was not Katherine Hepburn . . . THE NORSEMEN QUARTET is fifty per cent camera crazy . . . Hal Gordon, top tenor, and Kenneth Schon, bass, vie with each other in photographic skill . . . the other half of the group, Adrian Revere second tenor, and Edwin Lindstrom, baritone, are satisfied to pose while their camera comrades shoot . . . PHYLLIS JANE NEWMAN, twelve year old NBC actress, boasts a charm bracelet of numerous little dogs in gold . . . in fact most any breed you can mention . . . FIBBER MCGEE'S best crack of the holiday season—"as hard to sell as a Christmas tree on December 26" . . . AL BARKER, who authors the NBC Don Winslow of the Navy, in its radio version, is currently appearing as a character in the Don Winslow comic strip . . . VIRGINIA PAYNE, star in the Oxydol's Ma Perkins show, likes to sew . . . doesn't have time to make her own clothes so she designs them . . .

CROSS COUNTRY CURRENTS

EID PRENTISS, Dave Allen in A Tale of Today, loves dogs and he's not particular about pedigrees and long canine family trees. But he's worried about his Irish setter. Recently Ed fed the dog its dinner. A bit later, the dog still looking hungry, Ed's mother gave the setter a hearty meal. Then left alone for the evening the dog really went to town. First he proceeded to uproot a rubber plant and eat it, roots and all. Then to polish off this tasty tidbit, he got into a bag of bananas and ate six of them, skins and all. Ed's wondering if perhaps his Irish setter is really part goat.

AL PEARCE, NBC comedian, has finally told all. That is, how he happened to invent that "I hope, I hope, I hope," phrase which his character Elmer Blurt has made a national catchword. It goes back to the days when Al was selling life insurance door to door. Some of the prospects he approached were anything but gentle in their reception. When he rapped on the doors or rang door bells more and more timidly as time went on, saying to himself, "I hope there's nobody home, I hope, I hope, I hope." Later, when that was all behind him and he was preparing some radio material, he brought them back to life in his low-pressure character, Elmer Blurt.

CHICAGO—BILL THOMPSON, Nick De Popolus on the Fibber McGee and Company programs, is secretly a good Scot at heart with a yen for bagpipe music. And secretly, for many months, he's been trying to learn to blow his own bagpipes. But the secret got out when some of his NBC friends caught him in the act, striding around his apartment and piping furiously.

One of the rarest things in radio is to find twin voices. In fact it's one of the nightmares continually haunting a radio director that his star may become ill and he won't be able to match the voice with a substitute. But ISABEL RANDOLPH and ETHEL OWEN can fool even the director, when he's not watching from the control room. Recently, Ethel was unable to play her part of Harriet Houston on the NBC A Tale of Today drama. Without batting an eye, Isabel stepped in and played the role with no one the wiser.

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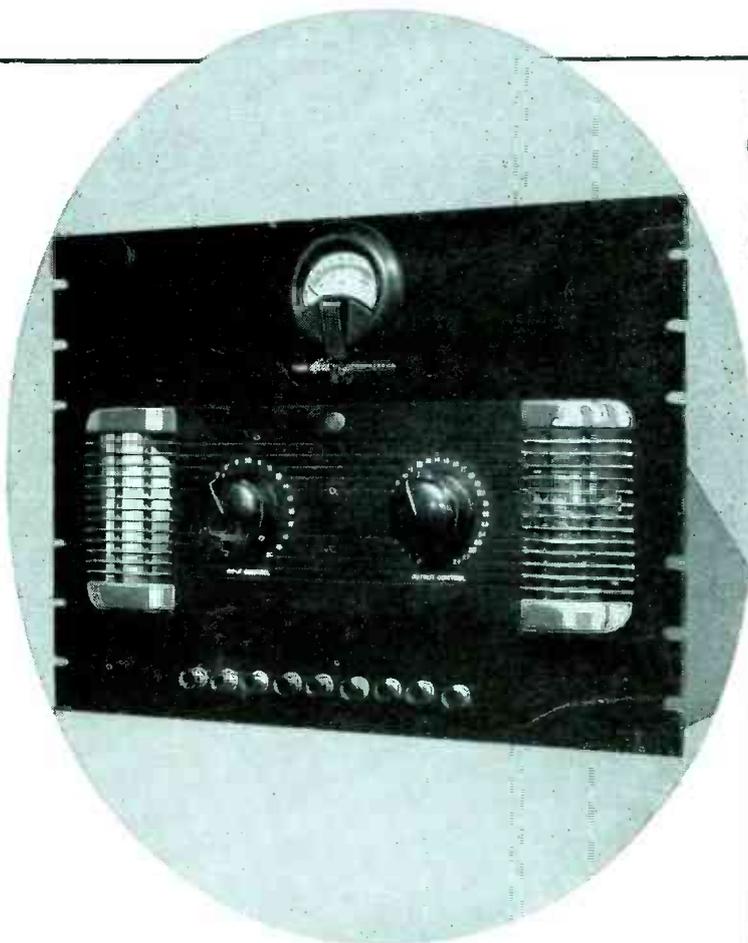
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