THE BROADCAST ENGINEERS' JOURNAL
Ed. Stolzenberger, Editor
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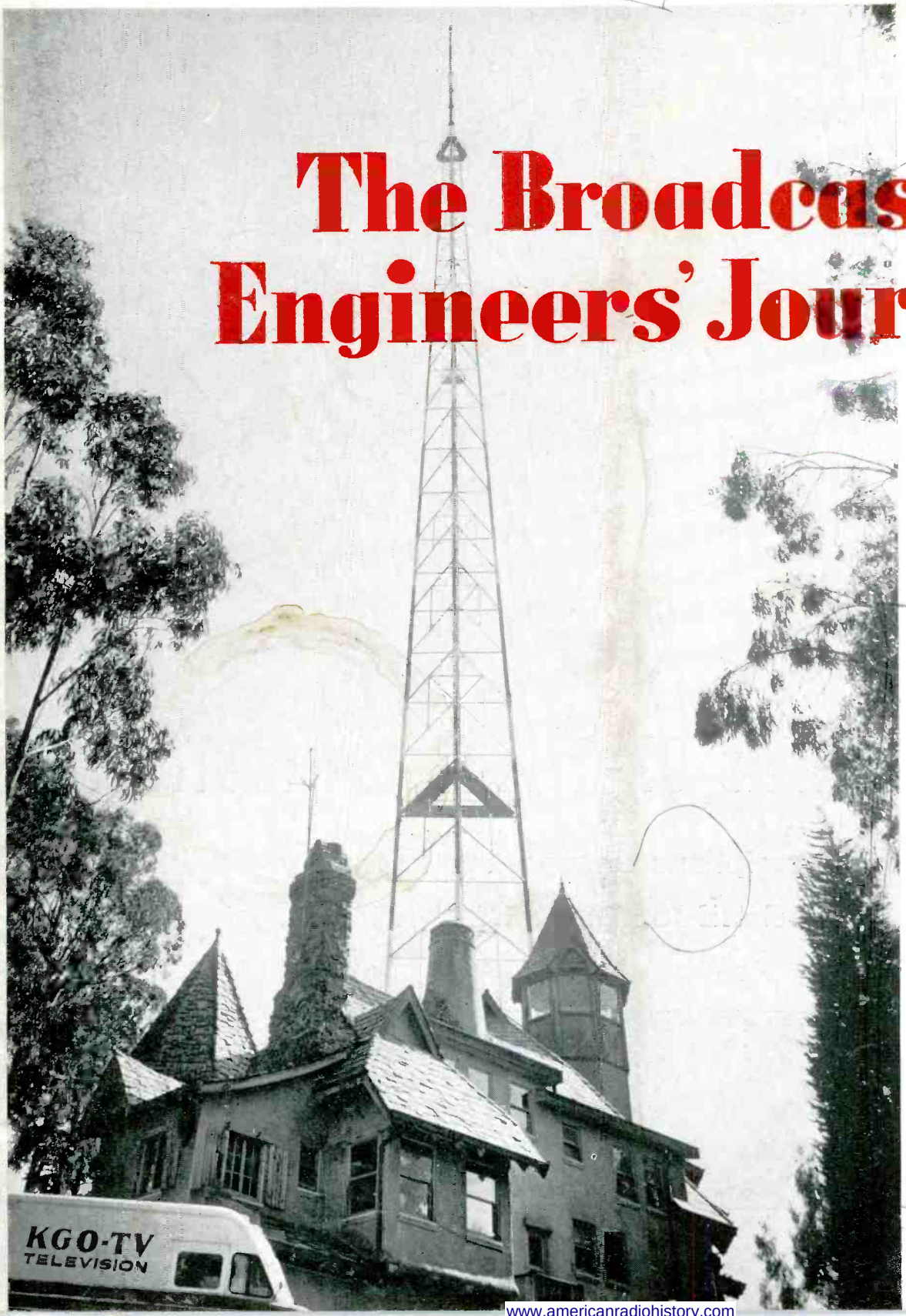
The Broadcast Engineers' Journal



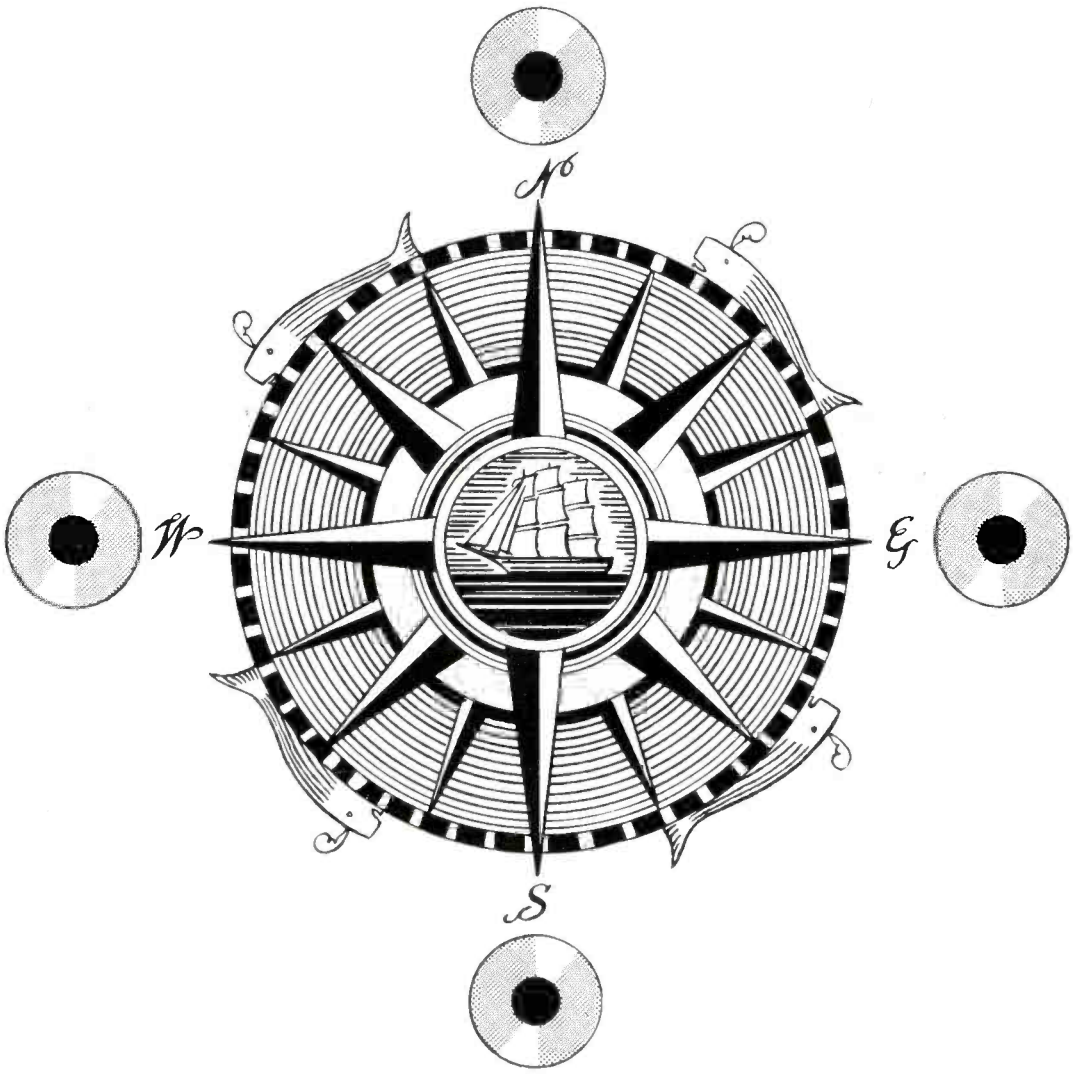
Towering 508 feet above San Francisco's fabulous Sutro mansion, KGO-TV's transmitter tower reaches the highest point in San Francisco County—1362 feet above sea level. Starting May 5th, KGO-TV studio and film programming originated from the modern television studios in the turreted landmark below. In the foreground at left is KGO-TV's mobile field truck equipped with micro-wave transmitter and miniature television studio, which is used to televise sports events and on-the-spot features. KGO-TV is owned and operated by the American Broadcasting Company, transmits on Channel 7.

KGO-TV SUTRO

Vol. 16 No. 6

JUNE 1949

FROM NORTH TO SOUTH ★ FROM EAST TO WEST



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THE BROADCAST ENGINEERS' JOURNAL

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National Association Broadcast Engineers and Technicians

OF, BY, and FOR THE BROADCAST ENGINEER

NABET is **your** democratic union, because
NABET rank-and-file **members control** their union.
NABET means **good** trade-union practice.
NABET is the **progressive** union in the Broadcast Field.

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Pertinent Topics from the National Office

from

C. WESTOVER
Exec. Secy., NABET

The Brotherhood of Union membership is a thing to marvel at. Especially when viewed in the light of events in Detroit.

NABET Chairman Dave Stewart, of the Detroit Chapter, has been doing a good job of lining up stations in Detroit. The unionizing of unorganized stations should be the goal of *all* unions.

The IATSE and the IBEW are taking a dim view of this matter and are intervening. The tactics of these two organizations would appear as a collusive attempt to defeat the NABET drive to organize in Detroit, hoping to split the stations among themselves. It seems that even the A. F. of M. (Musicians) is getting into the picture by demanding the stations hire more musicians if the engineers vote for NABET at NLRB elections. The fact that stands out is this: *The engineers concerned are standing steadfast with NABET.* Honesty and integrity is important in unionism and is so recognized by our members.

With Chapter elections now in progress, this office has been notified that Roy Glanton of Omaha is back in as Chairman of the NABET Omaha Chapter. It is the earnest desire of this office that all Chapters select the most able and energetic candidate for election to the Chairmanship of the respective Chapters, carrying that same policy down the organization into Councilman elections also.

C. WESTOVER, *Executive Secretary.*

HEALTH INSURANCE PLANS

A summary of the benefit features of 163 union and union-management health insurance plans currently in force in New York State is contained in a pamphlet just issued by the State Department of Labor.

Titled "Union and Union-Management Health Insurance Plans in New York State, January 1949," the 31-page publication includes information about programs administered by unions or unions and management which provide for weekly cash benefits; hospital, surgical or medical care services or cash indemnities for such expenses; or maternity benefits. It may be obtained gratis by writing to the Division of Research and Statistics, State Department of Labor, 80 Centre Street, New York 13, N. Y.

The pamphlet reveals that, under these programs, weekly cash benefits in cases of non-occupational illness or disability range from $10 a week to 60 per cent of regular wages. Hospital benefits of $4 to $8 per day are paid not only to union members but also, in many cases, to their dependents. Many plans afford the Blue Cross hospitalization program by which complete hospital servcie is given for 21 days with a 50 per cent discount for an additional 180 days on each hospital admission. Surgical benefits range from $50 to $225 for the most part, with a few programs offering higher amounts or complete surgical care.

Some maternity benefit programs provide six weeks of cash disability payments, a hospital benefit and a surgical payment. Others provide only one or two of these features. Some union-administered plans grant $25 to $50; others allow no maternity benefit payment.

A Message to the Members of NABET

from

JOHN R. McDONNELL
President, NABET

Negotiations as of the date of writing (May 11th) are proving, without exception, that the managements across the country have joined in an NAB "solid front" to prevent any appreciable rise in the cost of their engineering operations. This is most particularly pointed out by the attitude of "the other side of the table" at the NABET network sessions. They are using every device and strategy, including elaborate preparfations for continuation of broadcasting in case of an engineers' strike—and give every indication of prefering a strike to granting a wage increase. This determination and the solid front which backs it up finds our side at a disadvantage —several unions in the field, lack of cooperation between some of the unions involved, and actual threats of raiding tactics on the part of one of the unions. The radio men in general are suffering from this lack of unity, as has been pointed out many times in the columns of the "Journal." During the terms of the upcoming contracts it behooves all of us to increase our effort to achieve this goal of one union for Radio-TV men. In the meantime, we should keep in mind the axiom of collective bargaining to the effect that "You may not win them all, but there's always another time"—and be gathering our strength for the next round.

While the above paragraph was written especially for the network members, it applies equally to NABET men at the independent stations, where we have been running into a similar refusal on the part of management to recognize the economic conditions which should be reflected in the salaries of their employees. They, management, are ably abetted in their approach to negotiations by the operation of the Taft-Hartley Act—in fact, it is one of their most effective weapons. In view of the present dilatory approach of Congress to the problems of labor legislation, I again urge all of you to write to your Congressmen and urge immediate action.

By the time this reaches print, the Chapter elections should have been completed. In welcoming the new Chapter Chairmen to membership on the National Council, I need not point out that you are facing a year that will demand the utmost from you, in terms of time and effort spent in NABET activities. You will, I am sure, find the National Office ready at all times to lend its energies to the solution of the problems you will confront.

J. R. McDONNELL, *President.*

Television Receiver Distribution

Reported by the R. M. A.

RMA reports that 1948 fourth quarter shipments of TV sets increased 88% over the third quarter. The total shipments of TV sets by States and cities is reported by RMA as follows:

Service Area	Accumulative (1948 & 1949)
ALABAMA	
Birmingham	23
ARKANSAS	
Little Rock	19
Other cities	42
CALIFORNIA	
Fresno	11
Los Angeles	75,250
Long Beach	554
Oakland	60
Santa Barbara	201
San Diego	536
San Francisco	11,665
Other cities	1,157
COLORADO	
Denver	37
CONNECTICUT	
Bridgeport	2,039
Hartford	11,492
New Britain	144
New Haven	2,012
Waterbury	117
Other cities	688
Cities not stated	580
DELAWARE	
Wilmington	2,724
Other cities	7
DISTRICT OF COLUMBIA	30,338
FLORIDA	
Miami	789
Tampa	44
Cities not stated	54
GEORGIA	
Atlanta	4,455
Other cities	376
ILLINOIS	
Chicago	72,345
Moline	26
Peoria	365
Rockford	82
Rock Island	20
Sterling	37
Tuscola	16
Other cities	733
INDIANA	
Gary	2,261
Fort Wayne	47
Hammond	214
Indianapolis	423
South Bend	1,429
Cities not stated	160
Other cities	206
IOWA	
Madison	42
Other cities	6
KANSAS	9
KENTUCKY	
Louisville	2,897
Other cities	57
Cities not satted	165
LOUISIANA	
New Orleans	3,970
Other cities	13
MAINE	14
MARYLAND	
Baltimore	27,885
Other cities	375
MASSACHUSETTS	
Boston	29,095
Cambridge	3,797
Springfield	159
Taunton	48
Worcester	994
Other cities	265
Cities not stated	321
MICHIGAN	
Detroit	25,942
Grand Rapids	148
Pontiac	24
Other cities	222
MINNESOTA	
Minneapolis-St. Paul	6,223
Other cities	13
MISSISSIPPI	30
MISSOURI	
Kansas City	502
St. Louis	15,849
Other Cities	76
NEBRASKA	31
NEW HAMPSHIRE	
Manchester	309
Other cities	46
NEW JERSEY	
Atlantic City	1,109
Camden	11
Irvington	587
Jersey City	286
Newark	87,459
New Brunswick	21
Paterson	1,864
Runnemede	13
Trenton	5,101
Newark-Trenton	2,155
Cities not stated	6,579
Other cities	5,128
NEW MEXICO	
Albuquerque	246
NEW YORK	
Albany	11,933
Binghamton	53
Buffalo	8,687
Long Island	9,986
Middletown	153
Newburgh	34
New Rochelle	110
New York City	256,873
Poughkeepsie	813
Rochester	65
Schenectady	491
Syracuse	1,734
Tarrytown	33
Utica	66
Westchester	1,486
Other cities	683
Cities not stated	729
NORTH CAROLINA	
Charlotte	219
Other cities	12
NORTH DAKOTA	1
OHIO	
Akron	1,565
Canton	186
Cincinnati	9,617
Cleveland	19,462
Columbus	22
Dayton	1,763
Toledo	5,349
Youngstown	142
Other cities	843
OKLAHOMA	
Oklahoma City	18
Other cities	10
OREGON	
Portland	125
Other cities	9
PENNSYLVANIA	
Allentown	2,147
Easton	46
Erie	303
Harrisburg	201
Hazeltine	193
Lancaster	285
Philadelphia	98,369
Pittsburgh	5,652
Pottsville	144
Reading	1,449
Sunbury	119
Williamsport	31
Other cities	883
RHODE ISLAND	
Providence	3,266
Other cities	1,115
TENNESSEE	
Chattanooga	15
Knoxville	19
Memphis	3,057
Nashville	40
Other cities	30
TEXAS	
Dallas	3,982
El Paso	163
Fort Worth	2,093

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Official I.R.E. Summaries of Technical Papers

Presented at the 1949 IRE Convention—continued from last month

AUDIO

Chairman, O. L. ANGEVINE, JR.
(Stromberg-Carlson Company, Rochester, N. Y.)

18. The Reproduction of Sound.

HARRY F. OLSON, *RCA Laboratories Division, Radio Corporation of America, Princeton, N. J.*

All-acoustic subjective frequency-preference tests have shown that the average listener prefers the full frequency range in speech and music, as compared to a restricted frequency range. Therefore, if the listener does not prefer a full frequency range in reproduced sound, the logical conclusion must be that the reproducing system introduces objectionable distortions which are minimized by the restricted frequency range.

As sound-reproducing systems have been developed, engineers have evolved tests which depict the distortions and, as a consequence, the performance of a sound-reproducing system. The present state of the art indicates that it is possible to outline the performance characteristics of a high-fidelity reproducing system.

In order to reproduce the physical characteristics of a musical tone, the reproducing system must be free of various distortions and deviations, which will be defined.

All sound-reproducing systems introduce all of these distortions and deviations. Typical amplitude, nonlinear, phase, and transient distortions, and noise characteristics obtained in sound-reproducing systems, will be presented. Data obtained from objective and subjective measurements show that distortions in the form of nonuniform response-frequency characteristic, nonlinear distortion, noise, phase distortion, and transient response become more objectionable as the frequency range is extended.

19. New Developments in Studio Design in Europe.

LEO L. BERANEK, *Acoustics Laboratory, Massachusetts Institute of Technology, Cambridge, Mass.*

New broadcasting houses in Oslo, Norway, and Copenhagen, Denmark, contain important advances in studio design, while preserving beauty of architecture. Use is made of perforated facings and cavity resonators as part of the wall structure to control the reverberation time versus frequency characteristics. Efficient methods of vibration insulation are used. Shaping has been designed to provide freedom from flutter echos, to increase the excitation of the normal modes of vibration in the room, and to provide some diffusion. Interesting details of doorways, windows, and wall structures have been developed to reduce sound transmission between rooms. Listening-jury judgments performed in Copenhagen have revealed a new optimum reverberation-time characteristic for orchestra studios. British judgments indicate the desirability of logarithmic decay curves free from fluctuations. European experience shows the need for a reverberant, diffusing-type enclosure around the orchestra to satisfy the players.

20. The Technique of Television Sound.

ROBERT H. TANNER, *Northern Electric Company, Ltd., Belleville, Ont., Canada.*

This paper is intended to present a general survey of the problems and possibilities of the audio portion of a complete television program. The difficulties encountered both in achieving good-quality sound reproduction under the conditions obtaining in a television studio, and in ensuring that the sound accurately matches the picture, are discussed, together with the problem of making a single studio give the wide variety of acoustic characteristics demanded by the changing scenes. Possible improvements and suggested lines of development are mentioned, and the application of binaural reproduction is proposed as one method of obviating many of the present difficulties.

21. The Measurement of Nonlinear Distortion.

ARNOLD P. G. PETERSON, *General Radio Company, Cambridge, Mass.*

The harmonic method and intermodulation methods of measurement of nonlinear distortion are briefly reviewed. For simple, nonlinear systems that are not frequency dependent, Warren and Hewlett have computed comparative distortion values for harmonic measurements and for the modulation or carrier-analysis method of intermodulation measurement. These calculations are extended to provide comparative values for the difference-frequency method of intermodulation measurement.

A discussion of the special problems involved in determining nonlinear distortion in amplifiers, loudspeakers, recording systems, filters, noise suppressors, FM, and hearing aids leads to the conclusion that great flexibility is required in the measurement system. The most generally useful test arrangement devised so far for this purpose is a combination of a two-signal audio generator having continuously adjustable frequencies and an analyzer for measuring the various difference-frequency components. This procedure is in agreement with that recommended by the CCIF. The advantages of this method are illustrated by applying it to the measurement of distortion in amplifiers.

ANTENNAS

Chairman, LESTER C. VAN ATTA
(Naval Research Laboratory, Washington, D. C.)

22. Wide-Angle Metal-Plate Optics.

JOHN RUZE, *Cambridge Field Station, Air Materiel Command, Cambridge, Mass.*

The wide angle scanning possibilities of metalplate media are examined and general design equations are derived for con-

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TV SETS—from Page 3

Houston	2,047
Other cities	249
Cities not stated	175
UTAH	
Salt Lake City	977
Cities not staetd	24
VERMONT	3
VIRGINIA	
Alexandria	15
Norfolk	286
Richmond	2,846
Other cities	173
WASHINGTON	
Seattle	4,450
Tacoma	47
Other cities	72
WEST VIRGINIA	
Clarksburg	41
Wheeling	97
Other cities	29
WISCONSIN	
Madison	96
Milwaukee	12,859
Other cities	80
AREAS NOT DETERMINED	29,087
TOTAL SHIPMENTS	964,206

strained-type lenses. Pattern distortion at points other than the design points is examined with the aid of a series expansion of the phase errors.

Double-media and periodic-structure lenses are discussed. Application of the Campbell formula to the latter type indicates nearly achromatic or wide-band performance.

Experimental data are presented on both constant- and variable-refractive-index lenses. Further experimental data indicate the importance of smooth contours and compact structures in achieving low spurious radiation and large scanning angles.

23. The Diffraction Pattern from an Elliptical Aperture.

R. J. Adams and K. S. Kellher, *Naval Research Laboratory, Washington, D. C.*

The radiation pattern of a microwave antenna of elliptical contour is expressed in terms of a Fourier-series approximation to the aperture illumination. The method is easily applied to a lens of paraboloidal reflector by measuring the primary patterns of the feed in two principal planes. Typical examples show that the calculated minor-lobe structure, beamwidth, and gain are in close agreement with experiment.

24. The Measurement of Current and Charge Distributions on Transmitting and Receiving Antennas.

Tetsu Morita, *Cruft Laboratory, Harvard University, Cambridge, Mass.*

An experimental investigation at 300 Mc was made on the current and charge distribution along a cylindrical antenna over a ground plane for both transmission and reception. With the validity of these measurements established by correlation with the King-Middleton theory, measurements were also made on coupled antennas and folded dipoles of half-length $\lambda/4$ and $\lambda/2$ for spacings of 0.04λ. Each measured distribution was resolved into its symmetrical and antisymmetrical components by the phase-measurement data, and these were identified with the radiating current and the transmission-line current. Through a slot cut along the antenna, a current or charge probe was moved over the entire length of the antenna to measure the current or charge distribution.

25. Antenna Systems for Multichannel Mobile Telephony.

W. C. Babcock and H. W. Nylund, *Bell Telephone Laboratories, Inc., New York N. Y.*

This paper describes an arrangement whereby several antennas may be mounted on a single mast at the transmitting site of a multichannel mobile system op-

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Review of Current Technical Literature

By Lawrence W. Lockwood

Audio Engineering—February 1949

HIGH POWER TRIDOE AMPLIFIER—W. Selsted, R. Snyder
The authors describe a high-quality audio unit for exacting applications.

FLEXIBLE DUAL CONTROL SYSTEM—H. Sterling
Describing a continuously variable RC system providing boost and cut for both treble and bass without the use of inductances or feedback.

A NEW CORNER SPEAKER DESIGN—C. McProud
Final details on the construction of this revolutionary speaker housing which also accommodates television facilities.

AN IMPROVED LACQUER DISC RECORDING HEAD—H. Roys
A new recording head with excellent characteristics is described.

FULL RANGE LOUDNESS CONTROL—J. Winslow
This simplified loudness control uses commercial available components and may be assembled in an hour or so.

USE OF THE TRANSMISSION MEASURING SET—F. Curran
Practical applications of this versatile apparatus.

Audio Engineering—March 1949

AUDIO TECHNIQUE IN TELEVISION BROADCASTING—R. Tanner
How TV audio technique differs from other sound pickup methods.

VERSATILE PHONOGRAPH PREAMPLIFIER—P. St. George, B. Drisko
Design data for an excellent preamplifier.

WMGM MASTER CONTROL EQUIPMENT DESIGN—M. Gunn
Technical data on a modern, high-power, broadcast station instalation.

Audio Engineering—April 1949

DISC RECORDING FOR BROADCAST STATIONS—W. Mahoney
Technical details of a successful, high-quality studio installation.

AN OMNIDIRECTIONAL MICROPHONE—J. Hilliard
Described in this article is a new tvpe of miniature condenser microphone with a diaphragm having the area of a human ear drum.

Bell Laboratories Record—March 1949

OPERATING CONTROL OF TELEVISION NETWORKS—H. Lewis
General description of setup and operation of a TV switching center with simplified schematic of unit.

FM - TV—February 1949

SPOTTING TELEVISION'S FUTURE—Hon. W. Coy
The coming impact of television development and expansion as seen at the Federal Communications Commission.

FM - TV—March 1949

VHF & UHF AMPLIFIER—D. Balthis
Westinghouse 50 kw "symmetron" can be adapted to VHF television.

MOBILE TV STUDIO FOR WDTV—W. McCord
Dumont's answer to balancing field operating facilities with quick setup, operator convenience, and safe transit.

TV STATION MONITOR—C. Cady
A pulse counter circuit in an offset type monitor.

LOW COST TV OPERATION—G. Ray
How WNHC-TV, without benefit or cost of a cable connection, gives the New Haven audience the best television shows.

MULTIPLE TAPE RECORDING—M. Olon
Eight tape copies, with single or double sound tracks, can be run off simultaneously on this new recording machine.

Proceedings of the IRE—February 1949

A BROAD-BAND MICROWAVE RELAY SYSTEM BETWEEN NEW YORK AND BOSTON—G. Thayer, A. Roetken, R. Friis, A. Durkee

This paper describes the principal features of a broad-band microwave relay system which has recently been installed between New York and Boston. The system operates at frequencies around 4,000 mc. and provides two, two-way channels, each accommodating a signal frequency band extending from 30 cps. to 4.5 mc. Noise and distortion characteristics are satisfactory for the transmission of several hundred simultaneous telephone conversations or a standard black and white television program.

SOME ADDITIONS TO THE THEORY OF RADIO FREQUENCY HIGH VOLTAGE SUPPLIES — G. Mathers

The double tuned overcoupled air transformer commonly used in radio frequency high voltage supplies is represented by an equivalent primary circuit. This circuit can be used very advantageously to develop the theory of operation of the oscillator.

Proceedings of the IRE—March 1949

RATIO OF FREQUENCY SWING TO PHASE SWING IN PHASE AND FREQUENCY MODULATION SYSTEMS TRANSMITTING SPEECH—D. Gannett, W. Young

Computed and measured data are presented bearing on the relation between the phase and the frequency swing in phase and frequency modulation systems when transmitting speech.

THE HELICAL ANTENNA—J. Kraus

The helix is a fundamental form of antenna of which loops and straight wires are limiting cases. When the helix is small compared to the wavelength radiation is maximum normal to the helix axis. Depending on the helix geometry, the radiation may, in theory, be elliptically, plane or circularly polarized.

ELECTRONICS OF ULTRA-HIGH FREQUENCY TRIODES—R. Law

The electronic behavior of ultra high frequency triodes is well understood, but there is need for an easily interpreted relationship correlating the various factors in terms of performance. An empirical relation for anode efficiency as a function of frequency, interelectrode spacing and operating voltage which largely fulfills this need is deduced from the aforementioned theory and existing experimental data.

Tele Tech—February 1949

COAXIAL CABLE JOINS EAST AND MID-WEST TV NETWORKS—R. Hertzberg

A brief, general description of the 5000 miles of television channel now commercially available to broadcasters.

AN EXAMINATION OF PERFORMANCE CAPABILITIES OF SUPERREGENERATIVE RECEIVERS—G. Eltgroth

Ultimate performance limits, selectivity, and fidelity characteristics analyzed.

ANTENNA INPUT SYSTEMS FOR TELEVISION RECEIVERS—D. Foster

Features of signal transfer in the four general types of tuner circuits analyzed.

OSCILLATOR AND MIXER CIRCUITS FOR TV RECEIVERS—F. Norton

Low noise, conversion efficiency, adequate bandwidth, selectivity contribution, and degree of re-radiation are limiting factors for optimum performance.

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NABET

OFFERS ONE UNION FOR RADIOMEN

Join NABET

The NAB and its anti-labor attitude turns out to be the strongest answer to the broadcast engineer who would ask, "Why should I belong to a broadcast technicians' union?"

The solution to the broadcast engineers' problem of honest, competent, and highly specialized union representation requires a single national union, if their place in radio is to be bettered.

NABET is the *only* national union created expressly to serve the broadcast engineers and technicians.

Switch to NABET

NABET is the ONLY Union of Radio-TV Men that is Fighting to Defend the Jobs of Radio-TV Men.

NABET Intends to Beat the deal between the IBEW and IATSE in the same way that NABET beat the deal between the IBEW and Petrillo. The TRUTH has always won and NABET will win again!

URGENT! Eery Radio-TV Man of whatever union affiliation is urged to make himself cognizant of the IBEW-IATSE deal that will deprive Radio-TV men of their jobs. The IBEW double-cross of Radio-TV men is at work again! Write the NABET National Office for Guidance. This may be your last chance to switch to NABET—the only AUTONOMOUS union Of, By, and For Radio-Tv Men.

NABET invites inquiry from all Radio-TV men who are fully convinced of the futility of the IBEW as a haven for Radio-TV men.

To save your job in Radio-TV, you will have to have the courage to sign a NABET Union-Authorization Card, which will be provided by any NABET Officer see list (page one). IBEW radiomen from coast to coast are contacting NABET. Be organized among yourselves and designate a committee to provide the liaison with NABET. In NABET, the Radio-TV man's interests come FIRST.

NABET guarantees AUTONOMY for the Radio-TV man. Contact NABET today!

NABET ALONE DEFENDS RADIO-TV MEN'S JURISDICTION

NABET has steadfastly contested IATSE's false jurisdictional claims.

Meetings to date have disclosed that IATSE covets additional large segments of the technical television operation.

Radio-TV men everywhere can rest assured that NABET is exploring every avenue to protect their interests.

Ask your NABET Chapter Chairman for all details. Ignore rumors.

REVIEW—from Page 7

Tele Tech—March 1949

A NEW PROFESSIONAL TAPE RECORDER

A brief description of construction and operating characteristics of a new model tape recorder made by The Fairchild Recording Equipment Corp.

REACTANCE TUBE CIRCUITS—W. Smith

Controllable dynamic reactances find extended application in filter design.

"ELECTRONTYPE" SPEEDS COMMUNICATIONS

"Charactron" new type cathode ray tube, can reproduce printed messages at a milion word-per-minute rate.

Electronics—February 1949

SYNCHRONIZATION OF TELEVISION STATIONS

System developed by R. D. Kell holds R.F. cariers of interferring stations in rigid phase relationship to eliminate "venetian blind" interference, thus permitting closer geographical spacing of stations and easing of congestion of video spectrum.

AM AND NARROW BAND FM IN U.H.F. COMMUNICATIONS—E. Toth

An evaluation of two types of voice modulation under typical conditions of Navy communications experience and restricted to simple circuits. Overall physical requirements of mobile equipment designed for this specific service are scrutinized.

R-F TRANSMISSION LINE NOMOGRAPHS—P. Smith

Ten equations commonly used to compute relationships betwen electrical and mechanical properties of radio frequency transmission lines have been plotted as convenient nomographs.

STAGGER-PEAKED VIDEO AMPLIFIERS—A. Easton

Stagger high frequency compensation of a video amplifier provides twice the signal from a given amplifier tube in the conventional shunt peaking circuit or permits use of a tube having only half the plate current consumption,

erating in the 152- to 162-Mc band. The antennas are so disposed as to minimize shadowing effects of the mountaing structure, while keeping intertransmitter coupling to a tolerable minimum. Measurements of the characteristics are presented for arrangements of 6 and 12 antennas, respectively, mounted on a 62-foot steel mast. These measurements on a full-scale structure are supplemented by tests at a higher frequency on reduced-scale simplified models.

26. A Low-Drag Aircraft Antenna for Reception of Omnidirectional Range Signals in the 108- to 122-Mc Band.

JOHN P. SHANKLIN, *Collins Radio Company, Cedar Rapids, Iowa.*

A practical antenna for the prescribed application having 2.63 pounds drag at 250 miles per hour is made possible by the application of the unique "notch feed" principle in which the feed is across a notch cut part way through the center of the dipole. This results in an unbroken half-wave dipole. The dipole is bent into a U shape to achieve an omnidirectional pattern and to reduce drag.

The "notch feed" serves as a balanced-to-unbalanced line transformer, impedance-level transformer, and broad-banding impedance corrector.

PASSIVE NETWORKS I—SYNTHESIS

Chairman, ERNST WEBER
(Polytechnic Institute of Brooklyn, Brooklyn, N. Y.)

27. A Method of Synthesizing the Resistor-Capacitor Lattice Structure.

J. L. BOWER, J. T. FLECK, AND P. F. ORDUNG, *Dunham Laboratory, Yale University, New Haven, Conn.*

With the advent during the past decade of devices such as servo systems and predictors, the resistor-capacitor filter has come into prominence as the one best suited to such low-frequency work. Starting from the limitations peculiar to the resistor-capacitor structure, this paper develops a general method of realizing a given transfer-admittance, transfer-impedance, or transfer-voltage ratio in a lattice network. A particular emphasis is placed on achieving the method provides for the realization of a prescribed voltage-transfer ratio in a filter feeding a given resistor-capacitor load.

28. Exact Design of Bandpass Networks Using n Coupled Finite-Q Resonant Circuits (n = 3 and 4).

M. DISHAL, *Federal Telecommunication Laboratories, Inc., Nutley, N. J.*

When continuously increasing high rates of cutoff are required outside the desired pass band, triple, quadruple, etc., tuned band-pass networks must be used in place of the very familiar double-tuned "if transformer." Unfortunately, the design equations of classical filter theory are not satisfactory when exact response shapes are desired, because they are based on infinite Q, i.e., nondissipative, coupled resonant circuits, and the so-called reflection factors and interaction factor have been neglected. Based upon a method previously presented using the coefficients of the complex determinant equation, the exact required values are given for all the coefficients of coupling and all the $Q's$, in triple- and quadruple-tuned band-pass networks in order to obtain either one of two exact symmetrical response shapes. No small-percentage pass-band approximation is made. Contrary to the much-used statement that dissipation in the filter elements reduces the sharpness of cutoff at the edges of the pass band, it is shown that all the resonant circuits used can have finite $Q's$ with no degradation whatsoever of the pass-band edges.

29. Network Approximation in the Time Domain.

W. H. HUGGINS, *Cambridge Field Station, Air Materiel Command, Cambridge, Mass.*

This paper considers the direct relation between the natural frequencies of a network and the dispersion in time of its response to a unit impulse. It is shown that there exists a complex time plane, which is the inversion of the complex frequency plane, and that the network poles and zeros in this complex time plane are related in a simple, linear manner to the statistical measures such as the delay, variance, skewness, kurtosis, etc., of the impulse response in time. An application to the design of a receiver for rectangular pulses is described, and a criterion for optimum design in the sense of greatest peak-signal-to-noise ratio is suggested.

30. The Design of Frequency-Compensating Matching Sections.

V. H. RUMSEY, *Ohio State University Research Foundation, Columbus, Ohio.*

The general problem considered is that of transforming an impedance which changes with frequency to a specified impedance which is, as nearly as possible, constant with frequency. A simple procedure for solving the general problem is established, and formulas for the design of the appropriate matching section are worked out. The formulas give the parameters of the matching section in terms of the impedance of the load at selected frequencies. The technique is mainly ap-

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HOLLYWOOD NEWS

By Norman Dewes

"LIFE IN SAN FRANCISCO"

PART I.

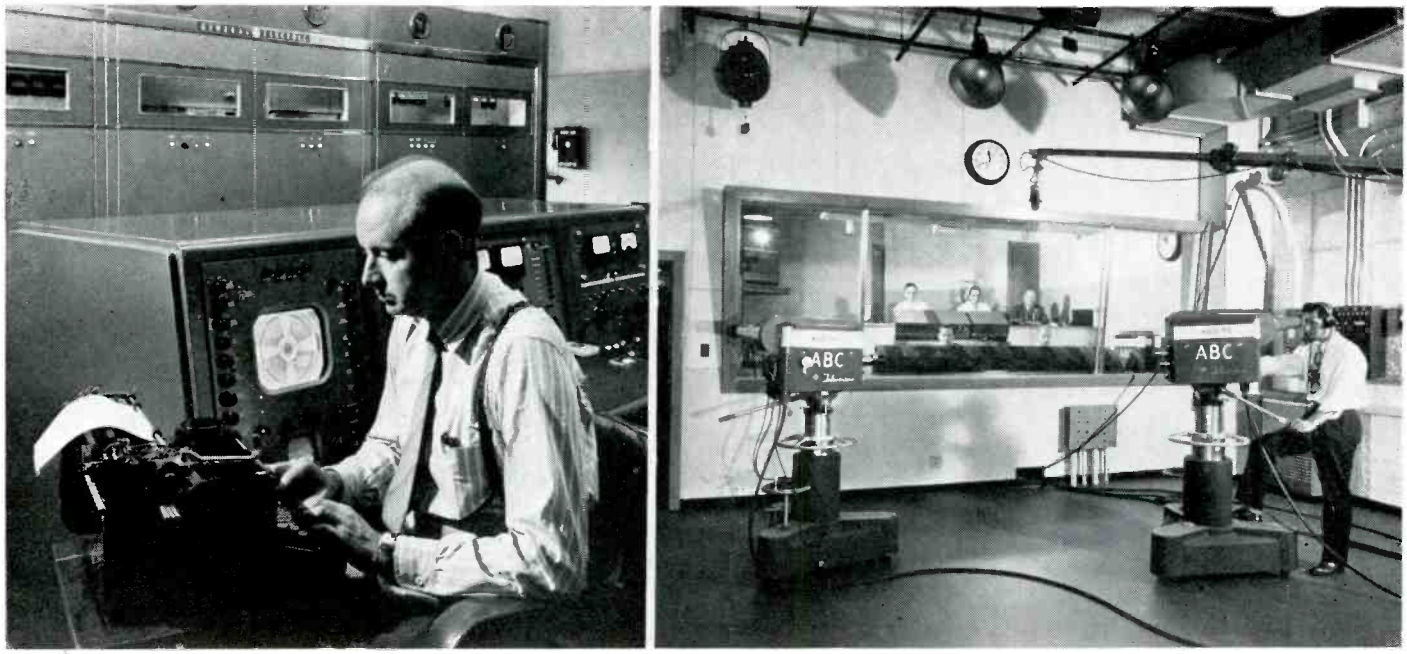
WELL. . . Bally Hi! or bally Ho! or Velly High! or Belly Lo! or—words to that EFFECT . . . ya see, we've been reading *"Tales of the South Pacific"* and LISTENING to *Miss Peggy Lee* singing *"Bali Ha'i"* from thereof and what with this being the First of May and all, it's rather GOT us—sounds like we're LEAVING, but we can't because we just got here and must BANG awhile on this pore Underwood, while we'd MUCH RATHER—but such thots are unSEEMly, or at least unPRACTICAL and anyway it isn't even the first of May but sometime after the first of June as these idle words are scanned and by THAT time perhaps we will have FORGOTTEN the whole thing, tho we DOUBT it. . . ANYWAY our Boat isn't quite finished yet and we lack the price of a sampan ticket to *Catalina,* much less *Bali Ha'i,* so all we can do is ENVY youse guys in NOO YAWK who can go see the play, including our own *Ed Conture* who is on tour and has TICKETS yet and ANYWAY that *Lieutenant Cable* made the WRONG DECISION and *"Bloody Mary"* or NO "B.M." he was a DAMPHOOL, U. S. Navy or NO U. S. N.!!! And if yuh haven't READ the book yet, GET IT—and we DARE yuh to read the Tale entitled *"Fo' Dolla"* and emerge the SAME MAN—and if yuh don't emerge ATALL, why brother you need ATTENTION!

SO—many things have gone by since the VERY FINE last issue of the YEARBOOK and our most recent colyum and/or pi ALLAH! mold, that we are rather LOATH to TRY to catchup with the SPICE of life out thisaway—it's HARD enough to find time to woo the PRESENT Muse, muchless go musing in the PAST—especially in THIS business—and as our Funk & Wagnalls so succintly puts it, MUSE: 1. To cogitate. 2. To indulge in reveries .SYN.: brood, consider, contemplate, deliberate, dream, meditate, ponder, reflect, ruminate, stew, study, think; (*Muse*—muzzle; perhaps lit. "sniff about"), which describes this REPORTING bizness rather nicely, WE think—but they neglect to MENTION that in the "sniffing about" yuh often gets yer NOSE in a SLING, from inserting it too deeply in other peepuls' BIZNESS. . . .

THEREFORE—at the no little risk of incurring enmity from BOTH ends, and sincerely hoping that we won't be scooping any of associate Associate Editor *C. T. Stevens'* stuff, we're gg to relate a FEW of our adventures in SAN FRANCISCO—besides, he has had only ONE colyum in the BEJ since last DECEMBER, so shouldn't mind so much, so if MINDINK, pliz excuse, and a BEER we are buyink next trip up! The WHOLE THING, and we speak CIRCUFROTATORILY, began when a gentleman named *Bing Crosby* who is on one of our radio shows buys a house adjoining the sixteenth hole of the Pebble Beach golf course, near Monterey, Calif. which is down the Coast a bit from San Fran and discovers that he can get a LOT MORE golf in by doing his show from the city by the Golden Gate, to Chamber a Commerce—so we loads up several thousand pounds of GEAR and hop the "Lark" for S. F.—of course *Jack Mullin* who does the tape recording has to be EXCLUSIVE and FLIES his *Ampex* machines up by Air Express, they only weighing several kilopounds APIECE, while he leisurely steams up the Coast Highway in his Pontiac. We gets a nest in the St. Francis after arguing only forty-five minutes about our reservation, checks in at KGO, this being on a Friday, and proceeds to survey the situation for the show Monday. WELL—the best place to START, they tell us, is the *Top of the Mark* because from there you can see ALL OVER and get a good GENERAL IDEA of things—but as it turned out, this was the FIRST of FIRST of MANY MISTAKES—and as we LOOK BACK on it all now, it seems simply INCREDIBLE that that quiet hour, spent in that delightfully beautiful spot, could have been the start of such a MAD physical, mental, moral, gastronomical, financial, libational, bacchanalian, categorical WHIRL.

BING—did some eight shows in San Fran, in the Marine Memorial Auditorium, and all were highly successful and VERY well received by the local citizenry—several weeks we did two a week, making it necessary to LAY OVER a couple of days between, much to the Company's CHAGRIN—guess *Denechaud* (ABC Hlyd Operations Super) tried EVERY DEVICE to make it work out CHEAPER to bring us back between shows, but it NEVER DID—particularly for US—and to the verb LAY you can attach nearly every ADVERB in the BOOK, for we seemed to have been LAID UP most of the interim in our room in the St. Francis—our guide and MENTOR thru MOST of the expeditions was one *Mark Dunnigan,* from KGO/ABC Studio/Field—and a nicer or more COOPERATIVE gentleman we've never met—not only soon knew more about the TECHNICAL VICISSITUDES of the show than WE did, which didn't TAKE LONG, but was able to steer us to most of the good EATING places in town and ALL of the DRINKING PARLOURS, good, bad or simply AWCHEEAWSHEEGLEEBLEGLEEBLEWOODLE — of course, good taste, common decency and COMMON SENSE preclude our relating ALL, or even a half third quarter tenth of WHA' HAPPENED therein, and THEREAFTER, but believe we can SAFELY describe a simple evening, as some SOBER person might see it.

FIRST—of course, to the *Top of the Mark* for a STARTER, or if the evening was a bit CHILLY, as it SOMETIMES GETS in San Fran, to the Hunt Room in the Bellevue for a Hot Buttered Rum, which incidentally are really out of this WORLD, and you find that you are TOO after several over PAR—then out to the Beach and Little Italy (hope we get the TOPOGRAPHY right—we weren't sure just WHERE we were most of the time, and that's ANOTHER funny thing



KGO-TV Transmitter and Studio. See Front Cover

Left, Harry Jacobs, transmitter chief at KGO-FM and TV. Right, KGO-TV studio; left to right, top: Don Horstkorta, R. Moore, Warrent Andreson (studio-field supervisor). Bottom, Milton Cooper, Harry Jacobs (transmitter chief). Cameraman: Pierce Hawk.

about San Fran—none of the NATIVES seem to know where THEY are most of the time EITHER—some nights after the show, we would get in *Mullin's,* who has LIVED there most of his life, car or perhaps *Mark's* who has ditto and START OUT for some joint, but we'd never FIND it or else get there after it had closed and have to go somewhere else—one or two nights we never found ANYPLACE and had to come back to the St. Francis and go to BED . . .) to *Alfred's* for the cracked crab and horse derreves (never COULD spell that word, and are not gg to try NOW . . .) which are simply out of this WORLD—huge platters of luscious, tender crab legs and joints, with more of assorted salami, Italian ham, little hot peppers, stuffed celery and pickled pigs' feet, onions, pickles, radishes, olives and Italian sourdough bread and plenty of butter—YOUMPH YOUMPH YOUMPH!—found out LATER that the BEST way to get to *Alfred's* is by cable car —after several Hot Buttered Rums, you simply GRAB one in the middle of the block, which is the ONLY practical way to get on the things, for if you wait until they finally stop in the LEVEL spot in the middle of the next intersection you either get RUN OVER by the indignant autos who have to stop for the "Dinkey" or TROMPLED FLAT by the passengers who are leaping off or on, and HANG ON the outside for DEAR LIFE, and CLANGITY CLANG! CLANG! and UP you go and it's like a trip to the MOON and when you finally LOSE yer GRIP and FALL OFF, yer right in front of *Alfred's!* . . . *Larry Robertson,* ABC Hlyd contact producer on the junkets and we tried it SEVERAL different times, and we ALWAYS fell off right in front of Alfred's. . . . Well, after you've stuffed yerself full of the RELISHES there, and we forgot to mention that when you ARRIVE, the place is ALWAYS crowded and the only things there seem to be to HANG ON to while you wait for a table are some round GLASS things, strangely filled with ICE, you all rise calmly from the table, join in lockstep with your nearest and dearest, and all MARCH OUT, quietly singing the Whiffenpoof Song, the Army Air Corps Song or some other suitable melody, amid the polite applause of the other diners, and down the street a few thousand miles to Lupo's for the NEXT COURSE, which consists of a wonderful green salad, iced broccoli, eggplant in some wonderful sauce, a TALL BOTTLE of red wine and PIZZA that is indisputabily indisputabally indisputably OUT of this World! *Frank* and *Mama Lupo* cook 'em in any combination you want, in an old stone oven, and they come out a HUGE tender circle of DELIGHT, filled with cheese, tomatoe sauce, anchovies, mushrooms, ham, chicken and peppers and baked to a turn in olive oil—RROWLF RROWLF! . . . THEN, after some more VINO and a few more stories by *Frank* who should CERTAINLY be in the moovies, there is desert of Fried Creme in Blue Flame, which is a large square chunk of pure solid cream, topped with flaming brandy—and then the tearful farewells and parting cries of the genial hosts and the other guests . . . THAT night while we were there, in swarmed a Beautiful Blond and a Birthday Party of some seven or eight MALES, and we toasted her BIRTHDAY at intervals all during the evening and when we got up to GO, she wanted to ditch her escorts who were all either asleep or DEAD and go with US—but we gently pushed her back under her table, for she was beginning to SOBER UP and WE couldn't quite SEE her anyway, so what would have been the USE . . . THEN arm in arm in arm in arm and up the street to the corner and *Larry's* for a *Cappuccino* to top off the evening—and if you've never had a genuine Cappuccino, pronounced Cop-oo-chee-no, you've simply never BEEN out of this world yet—they're—well—simply indescribable—they're properly made ONLY wheret there's a genuine, Made-in-Italy Cappuccino MACHINE, which is a huge, chromium-plated cross between a triple-cracking gasoline still nad a high-energy atomic pile—full of valves, levers, pipes and gauges, and presided over by *Larry* himself—the Cappuccino is born of chocolate and thick

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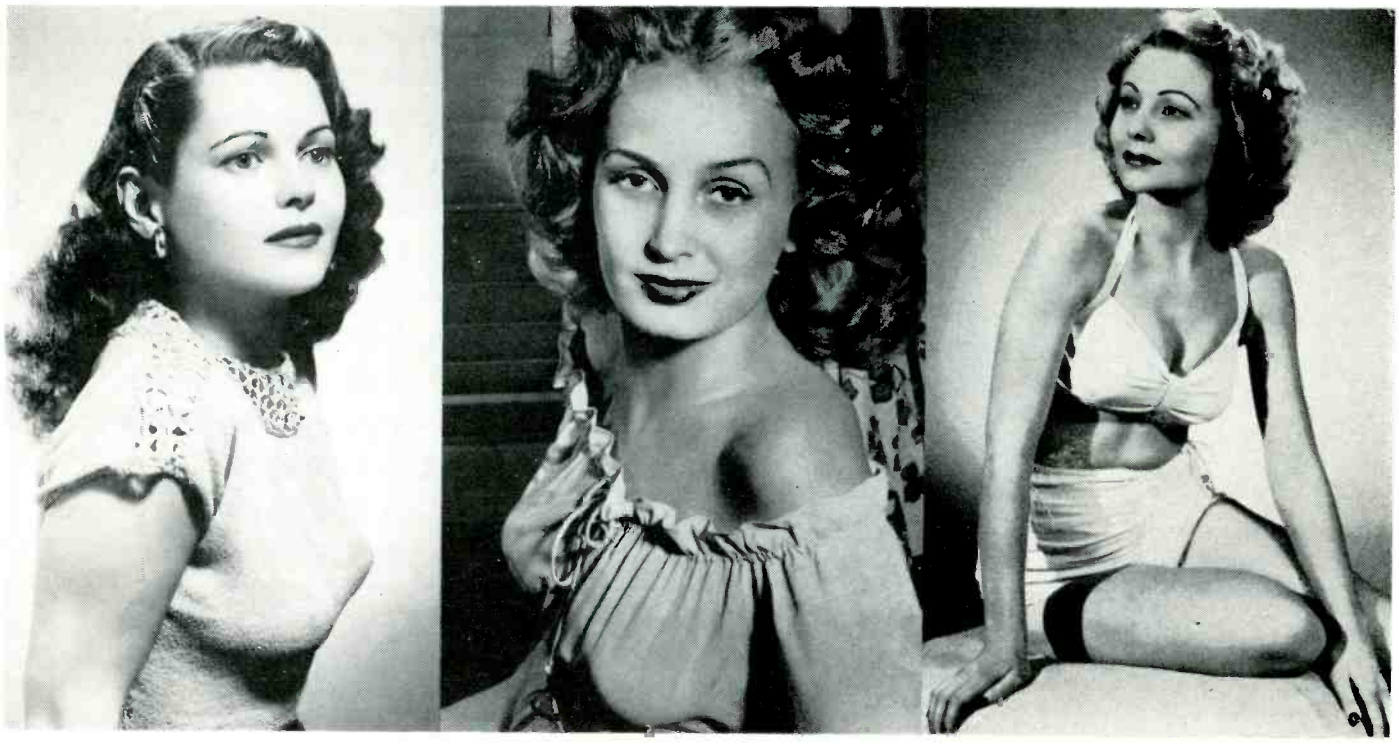
Hudson Chapter NABET News

By GENE CLARK



The fellows at WOR-Hudson Chapter NABET are submitting several samples of distraction—to prove that WOR is out in front with everything!

On the left, we offer Angelyn Orr, regularly heard over WOR-MBS; she holds a student pilot's license, if that's of any interest.

In the center, note what can be done *without* a sweater, as demonstrated by Michael Mauree, well-known radio actress, painter, and pianist—too!

Then on the right we have the relaxing, informal symmetry of Annette Trendler; she is a vocalist heard over MBS and WOR.

Who said that *everything* has moved over to CBS????

DETROIT—By WALT BAKER

We are sorry to report that at this writing the boys at WJLB are still on the outside, looking in. Negotiations were broken off last week after management failed to agree on one minor item —retroactivity. Up to that time negotiations had proceeded without difficulty, and a typical NABET contract had formed—one closely on a par with that of WWJ. Some salient points were: an immediate five per cent increase with another in two months from the present average of $65; all, however, contingent on the agreement of management to meet the WJBK wage scale when it is settled later. Other interesting points are a three year escalator and three weeks vacation.

Another Booth station, WBBC, in Flint, Michigan, will also be under contract but their wage scale will meet that of a Trendle-Campbell station in that same city, WTAC. Unfortunately, that NABET-inclined station is tied up with jurisdictional hearings before the Labor Board.

WJBK, by the way, is still stagnated by IBEW interference. The original jurisdictional hearing called for by IB was scheduled for May 13. IB requested a postponement from the local board and got it, but the ruling was later reversed by the National Board. So, it won't be long now!

Detroit Chapter is hoping for an early cleanup of these legal tangles for more than one reason. Not only will it multiply the prestige of NABET by four in the state of Michigan, but it will give the local Chapter an excuse to throw a b-i-i-i-g shindig.

CHICAGO —By FRANK GENEREUX

This month has been a busy month for NABET members and their officers. We had our pre-negotiation meeting at which we had the honor of having our national president present. "Mac" did a swell job of presenting the facts and the problems of the negotiations. He also heard plenty of beefs (which every healthy organization has) and these he talked over with the men involved. In the event of problems that were more or less confined to a group or groups, he offered suggestions as to their possible solution. This at times requires quite a bit of tact, which "Mac" has in abundance. When "Mac" threw himself open to questioning, not a hand went up!!! He looked around, smiled, and said "This doesn't sound like Chicago!" We more than made up for it though as the evening progressed!

Another "Mac" of note in our organization is Walt McDonnell, formerly of WENR-WLS gang. Mac is now with the WENR-TV-FM transmitter boys in the Civic Opera building. Quite a way from Tinley Park, eh Mac? Incidently Mac has just recently celebrated his 31st wedding anniversary. Congrats on the endurance test "Mac."

A former NABET man, Minor Wilson, has announced the grand opening of his station in Brownsville, (south by God) Texas. The call letters are KBOR. Is Brownsville Texas in George Maher's territory????

Two more NABabies added to the Chicago Chapter. Proud papas are Ivan Wrablick of WENR-TV-FM transmitter and Robert Dittman of same. There must be something about transmitter work!!!!! Ivan claims that Jr. can tell the vertical sync from the kitchen sink. "Dit's" little girl is being primed for a career in television.

Johnny Nitchals, of TV maintenance, has had a stroke of luck. His vacation falls during the time that his sister Jeanne is going to graduate from University of Cincinnati with her M.D. degree.

A budding brain in the ABC studio group is Kermit Slobb. His new design for a kodachrome projector has been accepted by Popular Mechanics. It will be forthcoming in near issue. Incidently the foto in this issue was taken by Kerm with his new Ciroflex.

Tried to get a message to the family in Schenectady but couldn't blast thru the QRM. Got a buddy (W8CEE) to try for me and he got a hold of a W2. Imagine my surprise when the W2 turned out to be "Hort" Mosher of WGY. (NABET of course). Thanks loads for the assist "Hort."

I'm afraid that Bill Cole is not too enthused about his 5LHI beam. He tried to unload it on me, but heck, I'm still trying to get the plumber's delight that "Pete" Cavanah sold me, out of my living room!!!!

We think that Bob Zwerk of the New York Chapter has a doggone gud idea concerning that bathing beauty contest. We can almost see Chicago's choice gracing the cover of next year's year book. You say we sound confident???? Have YOU seen George Maher's secretary? She's Dolores Martin, who, brethren, has a degree in Metalurgy. We're going to tell you more about her in a future issue, (with pics .. nuff sed).

Remember that lake monster discovered in Churubusco, Indiana? No? Well ask Bob Benninghoff about it. They pulled him out of bed at dawn and he flew down there with a wire record and got the dope, the turtle that is!!! Hey Bob! they just discovered the turtle had a mate .. better start packing.

We must have failing eyes because we saw an article in Variety which said that an NBC *Chicago* engineer was responsible for snafu on the Dottie Lamour show out of Houston. TCH TCH gentlemen. Chicago NBC field didn't send a man down there, and if Variety checked with the NABET engineer concerned, they'd get the story right!

There is plenty of activity in studio "J" right about now 'cause DST is rapidly approaching. Under the baton of "BI" SPEIRS the boys are going to town getting things ready for the big boom. In addition to "Bi," LEO MULATZ, AL King, and "ED" Lombard will keep things rolling.

Bunch of new fellas came in this quarter and we'll have the dope on them as soon as we can. To Page 15

NABET President John R. McDonnell visits the Chicago Chapter. Left to right, NABET National Rep. George Maher; Arthur Hjorth, Network Negotiating Committee; President McDonnell; Vern Mills, Chairman Chicago Chapter.

NEW YORK—By Bob Zweck

Hal Ritchie (SE) and his lovely bride, Joyce, have stopped rehearsing. They're getting ready to turn on the "On-The-HEIR" sign, pretty soon. Congratulations, you two—X-GI Hal is one of the nicest guys to frequent our lounge in a long time. Formerly up in recording (where the two met), Hal served in the Army before coming to the studio gang. Joyce, by the way, is an alumnus of the recording section herself. They're truly a grand couple.

Seems like old times seeing Jr. Norton sleeping in the lounge early in the dawning.....Hear you got those Captain bars in the CAP. Congratulations, Johnny!.....And joining the list of newcomers to the studio group, we have Joe Sturniolo, who got his knocks upstate at WSLB. I understand that's up St. Lawrence way. Joe, another ex-GI, was in the battle of the bulge and "earned" his Purple Heart there.....From the apprentice group, we welcome two more men into the studio crew. They are Messrs. Joe Vernum and Bill Schwartau. I guess Bill's claim to fame is his "nothing coming" routine. It happened thusly: Bill, getting instruction, was sitting in on the radio city end of a dance band memo. On the other end of the PL at some hotel, some perspiring engineer had called in for a final test; not having a mike available, he fed music and called peaks on it:—"90. 100. —1. +2, etc." "Nothing coming," says Schwartau at the studio. "Wadda ya mean, nothing coming. It just checked OK with transmission," retorts the field man. Standing his ground, Bill comes back with: "Nothing coming, I tell ya. I don't hear a single 'WOOF'; there's just some music in the background." A loud plop was heard at the other end of the PL.....Ah well. . . . .

Johnny Corbett and Bob Rudick were scurrying around so fast up in recording the other day that I didn't have time to ask them whether they were planning to make recordings at the new 45 rpm speed. I have heard these new records. Fine fidelity, I think.

Studio 3A which has seen so many changes in its day, has now undergone another face-lifting. This time, as the result of (you guessed it) television—I hear tell that the new Morton Downey show will take the air from here on a five-day-a-week basis. For the present, field equipment will be used, but I can't say at this writing whether or not it will be considered a field or a studio job as far as personnel is concerned. And NOBODY I talked to seemed to know.

Speaking of TV (and who isn't?), Georgie Peters has his finger in the pie. The Horn & Hardart pie, that is—George, who has been doing the show on AM for the last two year, has stuck with it now that it has become a simulcast, duocast, or what have you. DID YOU GUYS IN TV KNOW that in your mist you have a boy who not so long ago completed a feature role in the movie called "The Search"? He transferred to video from radio recording about a year ago, I believe. His name? Well, to his friends, intimates, acquaintances and bill-collectors he's known as—Noel Warwick. Auto graphed pictures are available at a discount in employee services. (Aw, I'm only kiddin' Noel.)

At this writing, Editor Stolzy is recovering rapidly from an operation undergone about April 25th. The picture we are printing this issue was not submitted to him for approval because we have it on rather good authority that viewing said picture would not help his recovery. The gal is every bit as sweet in person as she appears, and is our nomination this month for the title of "Miss Broadcast Engineer of 1950." Her name is "Sandy" Needham; works for NBC currently, but would like to try acting some day. Radio or maybe TV. Vital statistics: Most important of all, she definitely is a Dodger fan; this though she lives in Queens. She stands 5 ft. 5 in., weighs

Sandy Needham—See Text!

APPROXIMATELY 117 lbs., has brown hair and eyes to match. Hobbies (aside from her beau, to whom she will soon be engaged) are singing, swimming and writing. "Ooh! Don't forget dancing," she added. Hope you guys enjoy the picture, and don't forget if you know of any gals who want to enter this here gimmick, let me know.

It was awfully nice of the boys in field to take up a COLLECTION for FE Harry Alexander. Harry was sent to Miami with the "Doctor, I have a lady in the Balcony" show. One day the boys in field received a card from him saying that due to the high cost of *Things 'n stuff,* his funds were extremely low; expense account notwithstanding. Our boys in field don't need to have a foot shoved in their mouth; they can take a Q.....Almost as fast as you can say "Expense Voucher," a little "box" was tacked up on the wall and any and all contributions were cheerfully accepted. I have been told by completely un-reliable sources that, among *other things,* some fifteen bucks was SCRAPED up and forwarded to Harry in time, I hope, to avert serious consequences.....Also, in field, Harry Grelck is winding up his stint with the Boston Pops-RCA Victor series.....No, Harry is not retiring, it's just the summer hiatus.....Hal Schneider has just had his second; a boy. Congrats Hal—Robbie Robinson, accompanied by W. W. Chaplin, has just returned from a tour of the eastern seaboard and forthwith left for a deserved vacation.....That's all for June.

ABC—New York News

By GEORGE HALVONIK

Every year at vacation time there are always a few new additions to the engineering dept. The newest is Dick Grant from Syracuse, N. Y. Dick was formerly with WAGE the ABC affiliate in Syracuse. He has plenty of experience in all phases of radio broadcasting and will fit in nicely here.

Bert O'Leary has taken an early vacation this year.....Rolf Drucker and Harry Lang teamed up and headed south for three weeks. They expect to purchase an auto in Jacksonville and tour Florida in style. Two wolves on the prowl, I'd say. The day before they left, our expert on women, John MacDonald, lectured them on 'how to get acquainted with a woman while riding a bus,' with tips on how far back to stand in line when loading, how to open the conversation, etc.....Sam Walters is out somewhere taking it easy.

Harry Curtis is back in harness after a quiet two week vacation. Harry didn't travel very far. He wanted to stay within range of WJZ—didn't want to miss any of his favorite programs. If Harry had started one day earlier at ABC he would have had an extra week of vacation time. Better luck next year, Harry.

Phil Alampi, WJZ farm reporter, is the proud father of a seven pound, two oz. baby boy. That's the second farmer for the Alampi's. We hope the next one is a daughter. What's a farm without a daughter?

CHICAGO—from Page 13

May I remind the councilman of the outlying groups to send in the news from their stations so that I can really make Chicago's column full of meat and news. Remember fellas this column is for everybody. Send your news care of me to ABC Engineers lounge in Chicago. If I get it before the fifteenth of the month it'll be included in that month's report. (Deadline notice is printed in every issue of the Journal.—EdS).

SHORTIES FROM HERE AND THERE

Signs of Warmer Weather

Pete Cavanah, Ed Golec and Harry Johnson dis"cuss"ing last year's golf scores.

Frank Golder talking about that super-duper beam he's going to put up.

Harry Eckland flecked with paint, (He bought a new home).

Al Otto and his gray suede shoes.

73's from the gang at the Chicago Chapter. CUAGN next month with more of this and that....30.

DEADLINE is 2nd OF EVERY MONTH. EXAMPLE: COPY RECEIVED MARCH 2nd APPEARS IN THE APRIL ISSUE, IN THE MAIL APRIL 1st.

ROCHESTER

By "BUM" HOLLY

The greatest interest, at this date, in the Rochester Chapter seems to be centered around coming vacations.

Spring fever is still with us—has its grip on the local lads—and frenzied(?) activity centers upon plans and preparations for sojourning, from one to four weeks, at "Glutz's Hawaiian Hacienda on the East River," etc., complete with Ma and the seven (count 'em) kids.....Ah, me! Remember the days of *single* bliss? Hey! Stop smirking, you single guys—you won't be lucky forever.

First on the vacation list (if you can call it a vacation) seems to be Bob Treacy of WVET—who spent two glorious weeks (at "Uncle's" expense) on a cruise to Panama, with the Naval Reserve.

The rest of us, in Rochester Chapter, will begin our vacation skeds about the middle of June, and will continue in some cases thru October.

We Willie Reynolds is lead-off man at WHAM, to be followed, we hope, in rapid succession, by the rest of the "Trusties." Incidentally, WHAM has its usual complications of trying to fit about 80 weeks of skedded vacations into approximately 20 weeks of available calendar space.

Ray Gondek is again back to his WHAM (*and* social) duties, after a second, and we hope, *final* trip to the hospital. He's Veddy Veddy proud of his new coiffure (design by Dr. Frankenstein)—and *very fetching,* dear!! Claims he's gonna keep the hairdo permanently, perhaps start a new fad—speaking of fads—I wonder "wot hoppen" to the pyramid clubs?

Dick Dunn transferred his activities to WVET from WRNY, and his spot at WRNY is filled by Rochesterian Norm Briggs. Incidentally, wage scale negotiations, at WVET, are expected momentarily, as this is being written, and the collective Chapter fingers are being kept crossed.

TV is still the big story at WHAM—the antenna is in place on the new tower atop Pinnacle Hill, and looks mighty imposing—(highest point of the Rochester skyline, by a couple of hundred feet). The boys are feeding power into the antenna at the moment, and a test pattern is skedded sooon.

The bottleneck still seems to be the studio end—difficulties with equipment, etc.—and the TV staff is, at the moment, completely demoralized. Frankly, it's got to the point where Hall is now classed as a pushover for anyone with a Euchre deck. Snyder has been found with a casting rod—stuck out the News Room windows (no water in sight)—and Dullis was caught cruising the parking lot in his car, smashing AM operators' fenders. The rest of us (what am I saying) have that "far away" look in our eyes, and that "Covey-of-Quail exploding" expression on our more or less classic profiles. Oh well; give us another six months, and we'll get our heads above water!

The WHAM-TV Xmtr crew seems to have the situation well in hand. Balling's Eager Beavers—Gressons, Seiler, Anderson, O'Brien, et al, are rounding up the final odds and ends, preparatory to enjoying at leisure, the hilltop breezes, this coming summer. I hear, by the way, that Malone is first in line for the slot machine telescope concession—(a whole city of roof tops in the immediate foreground). Line forms on the right, gentlemen!!!!

Since our last writeup, we have two more new faces in the

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PITTSBURGH

—By FRANK E. HENRY

The four largest stations in Pittsburgh are now NABET, WJAS and KQV joining the fold with KDKA and WCAE. The stations not NABET with the exception of one, have all been built since the conclusion of the late war. What the prospects of these stations joining the family will be forthcoming in a later issue.

James Greenwood has left the NABET roles due to his promotion to Chief Engineer of WCAE. He has already received his "trial by fire." Since he's been at the helm WCAE has added "FM" and a complete revision of studio and feed switching systems, employing semi-automatic pre-sets. Plus the addition of two new studios and a new Master Control. The major portion of the audio facilities were wired by "Hodie" Grey and installation of equipment by Howard McClelland.

KQV has taken on the services of Geo. Williamson, Geo. will replace Art Sterman who must take a month's leave for an operation. Geo. will then work vacations after Art returns.

KQV will soon start construction of a new 350 foot Tower atop historic Mt. Washington here in Pittsburgh, this tower to be used for FM and then later TV?? They will also increase their FM power from 2 KW to 20KW.

WASHINGTON

By J. K. WILLIAMS

New face on the NBC Washington scene is that of Dale Applegate. Dale hails from North Platte, Nebraska, and comes to Washington from a 250 watt pot out in Colorado. Says he likes Washington. And no wonder with about five blondes for every guy. Graduate of a high powered radio training institute in Kansas City, Dale is now doing general studio work at WRC and WRC-FM.

Washington's weekly Television class, which had been conducted each Monday afternoon by John Stetson, Station Engineer of WNBW, has been discomboomerated for the summer. Just time enough for all concerned to forget what they have learned thus far.

April found all control rooms and booths reeking of cigar smoke as following engineering characters awoke to find themselves fathers: Mike Galvin, WRC AM Xmtr; Phil Horton, Star of the Bill Herson early morning thing; Archie DeVeau, WNBW rigger whose work reinforces Darwinism; and Joe Williams.

Announcement was formerly made of the engagement of Miss Ruth Collins to WRC Recording Engineer, Bob Shenton. Occasion was the "Jolly Girls" Semi-Annual blow out at one of the local breweries. (FYI: "Jolly Girls" is Phillips Code for a local gambling syndicate composed of female employees of NBC.) Anyway, GOOD LUCK to you kids!!!

WMAL-TV crew covered the annual Apple Blossom festival at Winchester, Virginia in April and all the boys came back tanned and looking good for having gotten to do a job at some other place than Turner's Arena. Understand that WMAL-TV scooped the other broadcasters by getting an exclusive interview with Bob Hope; this was accomplished by having AL POWLEY throw himself into the path of Hope's limousine and refusing to budge until AFRA man had cajoled Hope into five minute interview.

KLINE MINGLE Red Hot Ham at WOL transmitter finds that since he bought a television receiver for the family that he can't get much hamming done at W3CT because watching cowboy pix and the basketball games takes all his time!

The Washington Local wishes a belated welcome to the following Engineering Personnel of TV station WOIC, Messrs. BAILEY, BEALL, CATRON, CRIBB, DEWEES, FANNING, KOORNER, MALIK, MORGAN, ROMMERS, SCHATZ, SHUBIN, WALDRON, WICKRE, ZURING. Glad to have all you transferees and new members here with us in Washington.

ST. LAWRENCE

By ALEEN A. CORBIN

just the other day in which a correspon-

The photo is the apparition with which I have been threatening you for some time. For those of you who thought my procrastination meant escape was possible, let said apparition inform you of your inescapable doom. IT has arrived. (Naturally I've tried to choose one that flattered me at least a little.) With due apologies and regrets to Bob Zweck of New York, I'm just not the bathing suit type.

Not so, incidentally, Caroline Mary Ryan who will be Mrs. E. James McDonald by the time you read this. As Mr. M. is a member of the announcing staff of WSYR, Syracuse, Caroline will no longer be with us. This means that I shall shortly be introducing a new member of the WWNY engineering staff.

I was reading an article in the Journal

SAN FRANCISCO

By C. T. STEVENS

quency with which the St. Lawrence coldent was bitterly complaining that no one gives him any news. That poor chap. I can't understand what he is so upset about. I am always so swamped with timely tidbits of information. You may have gathered same by the fre-

Aleen A. Corbin

umn appears. Right now, for instance, television is the all-important subject with just about everyone in any way connected with radio or even some branch of engineering remotely related to the field. And, boy, are we hot on that subject here! Just today Mike Yonkovig declared enthusiastically that we might get some television in a couple of years or so. As you can see, it's just around the corner. Then of course, there is the new building on Washington Street which is to house all activities of the Brockway Company, including WWNY and WWNY-FM, which will occupy the whole top floor. Every few months the company consults an architect. At any rate, it looks great on paper.

However, there is a little more activity union-wise about these hyar parts. Our elections are this week. It looks like a real hotly contested affair this year. Dave Lane is running for the office again and Bob Bouchard has been doing some real campaigning. There are also some proposed changes in local By-Laws which we have been considering.

As I have said in earlier columns, my idea was to add little touches to the articles by having a picture each month. However, a peculiar thing has happened. After reading my last bit, Gail Pfister rushed in and said, "You don't have any pictures of me, do you? I've never given you one, have I?" For some inexplicable reason she seemed upset, and when I said that I hadn't and asked for one very politely, she said, "NO!!" In addition to this Betty Gillespie told me that she didn't have anything available for me, although I had seen some very nice snaps that she and her husband, Tom, took at the beach last summer. As I said, it is very surprising and I am deeply wounded by this obvious affront for absolutely no reason at all.

Having been out of town so much of late has made it almost impossible to keep abreast of the changes and additions that have been taking place in these parts with NABET members. Noted here, however, are a couple of recent changes of interest. Harry Jacobs has been elevated to the position of Station Engineer for KGO TV-FM. Merwin Jones is now maintenance supervisor of same. There have been so many changes up at Sutro that as yet I do not have them all but will try to have a complete list in the very near future. At the studios several new faces are being seen lately. Frank Bindt, an old friend of ours, is now with ABC as is John Hall. The vacation relief job for NBC is being very capably handled by Glen Allsbury. Some of the studio group of ABC to be transferred to TV up on the hill are Andersen and Cooper. and speaking of Cooper, the following story came from sources of unimpeachable integrity and are considered very reliable, or at least they were so considered up till now. In any event it does contain a moral.

It seems that Milt was doing a tape job on the backstage life of the Olsen and Johnson show "Hellzapoppin." Tommy Greenhow was the announcer type person on the job and had interviewed just about everybody that had anything to do with the show, midgets, singers, dancers, stagehands and the usual variety of weird characters that this show employs. The last person to talk to Tommy was a gorgeous bonus-built red head that to put it mildly attracted Milt's attention. In fact he was showing considerable interest all during the interview. However, all good things must come to an end and

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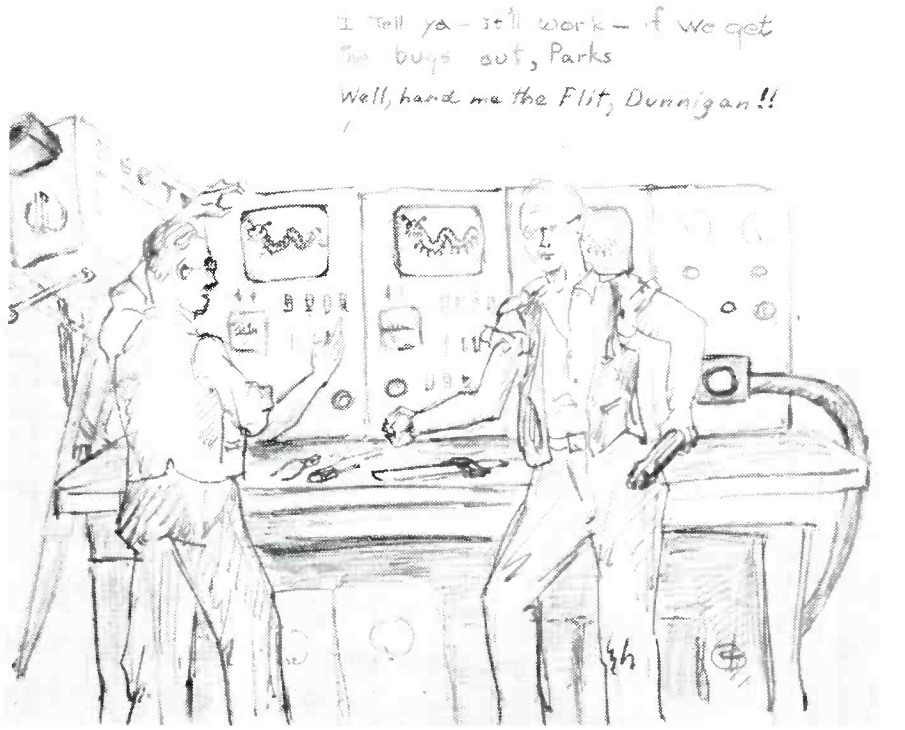


TRADE NEWS

General Electric's new 8½ inch, metal-cone television picture tube, along with an electronic device capable of measuring human reflexes and a display of the latest type electronic tubes were featured in the General Electric Company's Tube Division display at the recent Institute of Radio Engineers Convention in New York. The 8½ inch tube gives approximately 50 per cent more viewing area than the standard 7-inch tube, yet can be manufactured at about the same cost. This was the first public showing for the new metal-cone tube.

The new RCA Regulated Power Supply, WP-23A, is a source of highly filtered dc power. It is of particular importance to designers of electronic circuits and devices because it supplies a dc voltage which is continuously adjustable from 0 to 300 volts, and which remains virtually constant regardless of line-voltage fluctuations and the varying load currents encountered in development work. The constant voltage supplied by the new unit eliminates the necessity of continually measuring and readjusting the supply voltage each time a circuit change is made.

A new line of low-priced television receivers, using a simplified circuit design necessitating only 17 tubes and three rectifiers in addition to the 10-inch picture tube, is being produced by the General Electric Company at Electronics Park. Three table models and one console will comprise this new line. Lowest priced will be a molded-plastic cabinet table receiver, Model 805, which will have a list price in the east of $239.95.

A new utility video amplifier, Model 4TV17A1, for two-channel general purpose use as a line or monitoring amplifier, and as a line amplifier and supersync mixer, has been announced by the Transmitter Division of the General Electric Company, Electronics Park, Syracuse, N. Y. The amplifier is especially useful raising remote programs as low as 1.2-volts up to standard 2.0-volts for transmission. Either of the amplifier's two channels can be used with a 75-ohm matched input, or with a high impedance bridging the input for monitoring a program line. Low frequency response on the unit will pass 25 per cent negative 60 cps square wave with over-all tilt of 2 per cent or less on the single channel, and 1 per cent or less with both channels used in parallel. High frequency response is flat within plus or minus 0.6 db to 7 mc.

A new stabilizing amplifier (Type TV-16-A) for amplifying and improving television picture signals has been announced by the Transmitter Division of the General Electric Company. It is designed for use in studios and at transmitters as a picture line amplifier, or as an amplifier for remote line and radio relay links. The amplifier will remove low-frequency interference from the signal, stretch and clip supersync, and restore d-c to improve low-frequency response. The equipment can raise a signal as small as 0.2 volts, peak to peak, to a standard picture line signal of 2 volts.

Some of the electrical specifications on the new amplifier are: frequency response, flat within 5 per cent from 0 to 5 mc; input voltage range 0.2 v to 3 v, peak to peak, composite video, 10 per cent to 40 per cent supersync; output voltage range 1.5 to 2.5 v, peak to peak, adjustable, also 0.3 to 0.5 v, monitor output.

One of the unit's features is a double-diode circuit which clamps the video at the back-porch level. This clamp circuit removes 60-cycle hum and other low-frequency interference. It also corrects the sloping vertical blanking pedestal resulting from poor phase or amplitude response at frequencies below 60-cycles.

The equipment has a sync-stretching circuit which will restore a deficient input synchronizing signal to normal 25 per cent. The sync-stretching and clamping circuits will operate with the synchronizing signal as small as 10 per cent. In addition, the sync clipper maintains constant amplitude of synchronizing signal under small variations in input, removes overshoots and occilliations from the sync peaks, and reduces the amplitude of excessive input synchronizing signal.

A sync-mixing circuit adds supersync to the video signal from a studio camera which has blanking pedestal but not sync pulses. Associated with the sync mixer is a circuit arrangement which automatically feeds local sync to the transmitter if the remote video fails. The video gain can be controlled without disturbing the sync amplitude, and the bias on the first stage of the picture amplifier can be varied remotely to compensate for changes in video signal amplitude.

E. I. Guthman & Co., announces a Super-Q TV Tuner Model 34-1024, said to be free of trouble on channels 2 and 5. Uses a 6BH6 RF amplifier, 6AG5 mixer, and 6C4 local oscillator. List price, factory aligned, is $75. Converter transformers separately, are $2.95. Circuit and data sheet is available from Guthman, 75 West St., New York 6, N. Y.

The Roto-Power Corp. of Brooklyn announces availability of a tool called "POW'R HAM'R," which fits the chuck of the hand electric drill, and has many mechanical uses. The price is $9.50 net, takes ten sizes of rawlplug drill bits, anchor drill bits, etc., from No. 6 wood-

American Broadcasting Company executive engineers examine latest General Electric television studio camera during recent visit to G-E's Electronics Park, Syracuse, N. Y. While there, the ABC officials discussed problebs of the television industry and examined new G-E television equipment. left to right, they are: R. J. Brown, G-E sales engineer; and ABC executives, R. M. Morris, radio and TV facilities engineer; E. C. Horstman, engineering director for the Mid-west area; G. O. Milne, director of operations; Frank Marx, vice president in charge of engineering; and J. M. Valentine, television engineer for WENR-TV, Chicago, Ill.

screw size to 5/8 inch. Attachments available also for riveting, peening, caulking, chipping, scaling, paint removing, etc.

FM Ass'n reports major manufacturers are equipping their average-priced TV sets with full FM facilities. FMA also reports steadily increased production figures for FM sets, business excellent, no depression in sight. FMA also reports that nine of its member-stations have filed anti-trust suits against AT&T and the Northwestern Bell Telephone Co., a subsidiary, because, it alleges, the Bell System did not or would not supply FM facilities requested by these stations. It appears some of the stations were connected by radio-links, and some of the more remote stations wanted to be tied in by Bell System fax. FMA attorney is quoted by FMA thus: "It is obvious that the refusal (to provide the service) is as obnoxious to the anti-trust laws as the refusal to interconnect Bell facilities with non-Bell wire circuits."

Federal Engineering Co. has announced its "Picture VU,"—a portable mirror and stand, which may be placed in front of the TV set, and positioned so that the TV service engineer can observe the picture as he makes the various picture adjustments from the rear of the TV set. 37 Murray Street, New York City.

Precision Apparatus Co. announces a new wide range sweep signal generator, with a range of 2 to 240 mc in five bands without skip. Additional information of the E400 generator will be furnished by Precision, at 92-27 Horace Harding Blvd., Elmhurst, N. Y.

Sylvania announces a special line of "Television Tubes" identified by orange and green cartons. They are said to be specially processed to meet higher average requirements of TV receivers, and are intended to reduce the number of service calls due to tube troubles. List prices slightly higher than corresponding broadcast receiver counterparts.

National Cylinder Co. announces that FCC has approved its high frequency welder. It is claimed not to interfere with radio and TV reception. Frequency stability is said to be excellent.

New airborne TV antenna of the kite and baloon type, which is called a KY-TOON. CAA restricts height to 500 feet. Measures 6½ feet long and 3½ feet in diameter, uses helium, with coax line. Said to be excellent for service men, as it will enable them to quickly determine the minimum height required to receive a useable TV picture, which otherwise would have to be done experimentally on a hazardous roof-top.

The Daven Company of Newark, N.J. has released an informative four-page circular on switches, entitled "Switches by Daven." It embodies general information on higher quality switches of excellent electrical characteristics. These switches are used in broadcast and communications, industrial fields and in laboratory tests. With this information, the circular offers equipment order instructions for Standard Daven Switches and additional data for ordering special units. Copy of this circular may be obtained by writing to the Daven Company, 191 Central Avenue, Newark, N. J.

NEW RADIO TERMINAL CONNECTOR SERIES ANNOUNCED

To meet the need for a quick disconnect on radio chassis, wall or rack mounting installations, Cannon Electric has recently developed an entirely new series of connectors designated as the "RTC." Advantages of this new series are as follows: Low separation force; simplicity of mounting on chassis; moisture-drain holes provided in receptacle section; provisions in plug section for lacing down wires to plug after soldering to contacts; two types of terminals—crimp-on and soldered; lightweight. The plug shells are phenolic which also serves as insulation, with metal parts limited to clips, Clamps, and contacts. The series is available in five different sizes and several styles having the following complements of contacts for 18 and 20 wire; 12, 20, 24, 32, 36 contact combinations. Mechanical spacing on all contacts is 3/32-inch with a minimum flashover of 2500 volts and a recommended amperage of 5-amps. For further information, the RTC-1 Bulletin is available from Catalog Dept., Cannon Electric Development Company, 3209 Humboldt Street, Los Angeles 31, California.

SAN FRANCISCO—From Page 17

so reluctantly and with heavy heart (and heavy tape recorder) Milt packed up his gear and made his way out of the theater. Comes now the time to dub the tape on to a disc for playback. Everything was going along fine until the place where the last interview should have been. In its place was silence, grand and glorious silence. The producer, having noted the times remembered that this was when the red head was slinking around Cooper while Tommy was doing his best to keep his mind on the interview. Quoth Cooper, "That red head was interfering with my work and I guess I just pushed the wrong button," un-quoth. Now comes the sad part of our story, the kicker. I don't want to break your heart, Milt, but that was no dame, that was a female impersonator!

Recent visitors to our plant here include Murdo McKenzie, ex-Hollywood NBC; Jack Mullin, who does the taping on Ampex and Norman Dewes who does the mixing on the Crosby show which originated at the Marine Memorial here, and last but certainly not least is Toby Hamma, an old timer with ABC-KGO here who is now a big shot politician in the City of Stockton in the city attorney's office. Toby was with us here for a long time, is a great guy and we sure do miss him.

May 5 was a great day for KGO-ABC as this was the day that they started a regular schedule of TV programs for the bay area. The addition of KGO to the TViewers of this area will be a welcome relief as they have had only one other station to look-listen to up until this time. KGO has had a test pattern on for lo these many months in order to get all the bugs out of the rig. Well, dat's all for now and as they say in beautiful Mexico, Aloha.

IRE PAPERS—from Page 9

plicable to cases where the total bandwidths do not exceed 50 per cent of the center frequency.

31. **Amplifier Synthesis Through Conformal Transformations.**
D. L. Trautman, Jr., and J. M. Pettet, *Stanford University, Calif.*

This paper is essentially the exposition of a new development in methods of network synthesis. It considers the problem of designing a band-pass amplifier comprised of any of the conventional interstage coupling networks for any prescribed bandwidth. Maximally flat response is considered in detail, but the method is not limited to it.

The notion of complex frequency offers a method of specifying and comparing the several networks, and lays a mathematical foundation suitable for developing a general band-pass to low-pass transformation for this class of circuits. The potential analogue is exploited for its intuitive suggestions in formulating the transformation and in suitably arranging the poles (the design parameters of the over-all amplifier). The general transformation is developed in detail so as to give a firm basis for using these same techniques in the solution of general network problems. Spe-

cifically, it makes possible the synthesis of staggered double-tuned circuits in the very wide-band situation.

INSTRUMENTS AND MEASUREMENTS II—OSCILLOGRAPHY

Chairman, T. T. Goldsmith, Jr. (*Allen B. Du Mont Laboratories, Inc., Clifton, N. J.*)

32. An Impulse Generator—Electronic Switch for Visual Testing of Wide-Band Networks.

T. R. Finch, *Bell Telephone Laboratories, Inc., New York, N. Y.*

The impulse generator-electronic switch is an electronic instrument designed primarily for testing radar components such as delay and pulse-forming networks with transmission delay or pulse length in the range 0.05 to 20 microseconds. The instrument may be used to test any network that can be arranged to store a capacitive charge.

Discharge characteristics of a standard network and the network under test are simultaneously displayed in pictorial form and instantly compared. The instrument performance is illustrated with photographs of cro traces for pulse and delay networks, sweep networks, and delay cable. Use in troubleshooting defective networks is also shown in pictorial form. Description of the operation of the instrument is supplemented with photographs of the voltage waveforms.

33. A 50-Mc Wide-Band Oscilloscope.

A. M. Levine and M. Hoberman, *Federal Telecommunication Laboratories, Inc., Nutley, N. J.*

A wide-band oscilloscope capable of displaying waveforms having components extending from a few cps up to 50 Mc is described. This oscilloscope has been designed for general use, including high-quality television work, pulse modulation, and transient studies.

The features of this oscilloscope include a 50-Mc wide-band vertical amplifier with 50-db gain capable of full screen deflection, and a horizontal amplifier with 10-Mc bandwidth suitable for sweep-voltage coordination with the wide-band vertical deflection. Special sweeping and timing devices are also available. The mechanical design has been specially integrated with the general use of this type of instrument.

General theoretical considerations covering the design, a full description of the equipment, and performance results are given.

34. A Timing-Marker Generator of High Precision.

R. C. Palmer, *Allen B. Du Mont Laboratories, Inc., Clifton, N. J.*

A circuit is described whereby a delay line is used to control the interval between repeated pulses used as 1-microsecond timing markers. The pulse train is started by an input gate and extends for the duration of the gate. An initial pulse is introduced into a delay line, then completely reshaped so that the delayed pulse is of the same amplitude and form as the initial one. The delayed pulse is then introduced into the line, resulting in the establishment of a train of identical pulses with a spacing controlled to a large extent by the delay time of the line. Through regulation of the operating potentials, accuracy in timing of the order of ± 0.01 per cent may be achieved. Limitations of the accuracy of the markers is discussed, as is the extension of the technique to intervals of time not readily obtained by means of delay lines.

(Continued next month.)

For Information About
N A B E T
Contact Any Officer.
★ See Page 1 ★

HOLLYWOOD—from Page 11

cream, nutured with bonded or 100 proof brandy, rum or bourbon as you prefer and finally wed with LIVE STEAM injected under high pressure, from the MACHINE—this all is properly topped with a gentle floating of a little old imported cognac, and—well—this is where we leave you—you'll have to find your way back to the hotel as best you can—because WE usually sit there and have Cappuccinos for the rest of our LIVES, which is never too long, or long ENOUGH.

BEFORE—we go any FURTHER, we wish to state that the above is, of course, pure FICTION—and any resemblance to anyone living, dead or in the employ of the American Broadcasting Company is absolutely ACCIDENTAL—that goes for the REST of this yarn, too—and if you WAKE UP the next morning (CONGRATULATIONS!) feeling MIGHTY LOW, it's just because you haven't got your system ADJUSTER yet, and should go right out that evening and do it AGAIN—we found, too, that as soon as you are on your FEET in the morning or whenever you manage to arise, if you walk briskly up the street from the St. Francis to the Clift Hotel and go in the Redwood Room and order a Ramos Gin Fizz and drink it down, everything will be ALL RIGHT again, but QUICK—the way they make them there is really—FINE—and as they contain milk and eggs, if you immediately order ANOTHER one and drink it down, you will have had BREAKFAST and can go RIGHT to WORK.

SEE PART II—(ILLUSTRATED—!)
IN THE NEXT ISSUE.
ORDER EXTRA COPIES NOW!

ROCHESTER—from Page 15

WHAM lineup.....Bill Grant joins the WHAM gang from KXLW and N.Y.C. and Art Ziehm of Warren, Pa., and more recently from WNAE also comes to become a member of our blessed home.

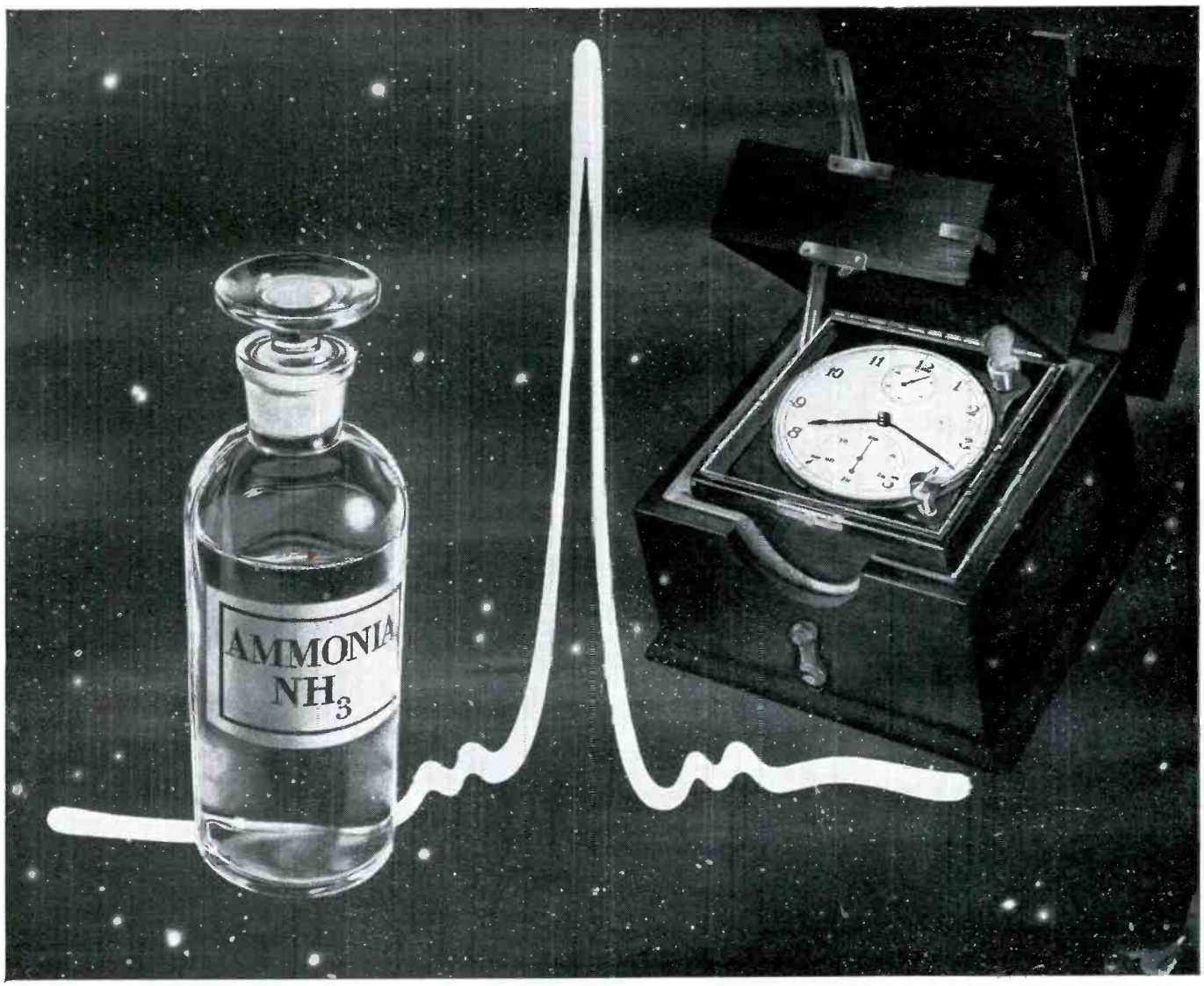
Sooner or later we hope to have a complete TV studio staff. .....Fine biz.—The more manpower, the fewer busted backs. Oh yes, another little "helpmate" is expected to arrive on May 15th, in the form of a completely equipped mobile TV unit. The new truck outfit should remove *some* of the backaches and will, no doubt, be appreciated by not a few.

Mouatt of WHEC sez, via phone, that the WHEC, AM and FM staff continue their calm, collected and sedate existances—nothing of importance to report except an approaching increase in the size of the families in the Walt Lynch and George Wilson 'menages,' in May and October, respectively. See what happens to "idle hands," fellas!! !Get into TV and things like that don't occur!!

Oh yes, large orders of congratulations are due to our Chapter head Ed Lynch of WHEC, on his new title of NABET Vice President. It couldn't happen to a nicer (or busier) guy. More power to you, Ed, and may all your troubles be little ones, etc.

As far as the eye can see, from this vantage point, the only operational break in the area came to Craig Williams of WHEC when he made his annual pilgrimage to Spring Training Camp of the Rochester Red Wings Ball Club.

Florida trips *are* quite a bore, especially following a Western New York winter—and of course (natch) we're all glad we don't get stuck with details like that!



Using ammonia and radio waves, RCA scientists have devised a clock more accurate than the stars.

Your future will run on **"Atomic Time"**

Imagine a clock which will lose or gain only one second in 20,000,000, and which—when further research is carried out—will vary no more than *a second in 30 years!*

Such a timepiece—constructed by the National Bureau of Standards on a principle conceived and demonstrated at RCA Laboratories—is now in operation. More accurate than the stars? Yes, because "star time" will vary when Mother Earth wobbles in her orbit.

The pendulum of RCA's clock is an atom . . . at present, the nitrogen atom in an ammonia molecule . . . though others may later be used. Vibrating at 23 billion 870 million times a second, it controls a system of radio waves and electrical impulses which operates the clock—locks them in tune with its own unvarying beat!

You will hardly want an "atomic clock" to get to the office promptly, or get your children to school. But scientists and engineers who must split seconds into millions of parts need this more accurate way of *telling time.*

The atomic clock is but *one* of the many major achievements pioneered at RCA Laboratories. Such leadership in science and engineering adds *value beyond price* to any product or service of RCA and RCA Victor.

* * *

Examples of the newest developments in radio, television, and electronics can be seen in action at RCA Exhibition Hall, 36 West 49th Street, N. Y. Admission is free. Radio Corporation of America, Radio City, N. Y. 20.

RADIO CORPORATION of AMERICA

World Leader in Radio—First in Television

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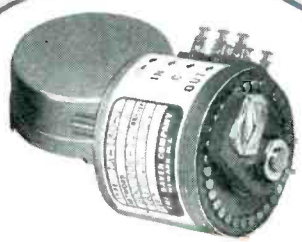
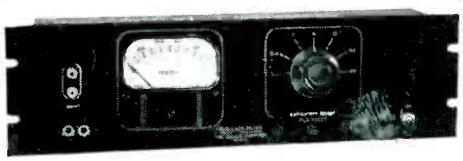
ENGINEERING LEADERSHIP



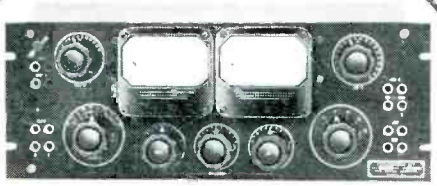
MINIATURE ATTENUATOR—TYPE LA-130
30 STEPS—DIAMETER 1¾ INCHES

30 step ladder network, provided in a minimum of space . . . recommended for use in high quality equipment requiring a wide range of attenuation, where mounting space is limited.



FREQUENCY METER TYPE 838

. . . frequencies read directly to 100,000 cycles with an accuracy of ± 2% of full scale in use . . . 7 ranges available . . . low input voltage requirements . . . large, easy-to-read illuminated meter . . . mounted on a 5¼" relay rack panel.



TRANSMISSION MEASURING SET—TYPE 10A

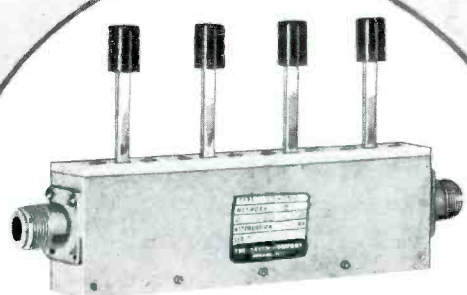
Direct reading instrument . . . meters and associated range controls can be used independently as VU meters . . . range + 26 to −100 DBM . . . total attenuation 111 DB in steps of 0.1 DB.
(Pat. Pend.)

Here are 4 of the more recent DAVEN "firsts". DAVEN long has been known for leadership . . . particularly in engineering and design. Many of our developments have been incorporated in the equipment of broadcasting stations, sound recording studios, and electrical laboratories throughout the world, and are specified as standard.

The DAVEN Engineering Department will be glad to discuss these new developments with you. Your inquiry is invited on the units shown or on any other DAVEN product.

THE DAVEN CO.

191 CENTRAL AVENUE
NEWARK 4, NEW JERSEY



RF AND VIDEO ATTENUATORS.

Video Range:	0- 10 Mc
RF Range:	0-225 Mc

Fixed as well as step rotary and push-button attenuators are available. Technical information available upon request.