

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

**VOL. 15**

**JUNE**

**No. 6**

**1948**

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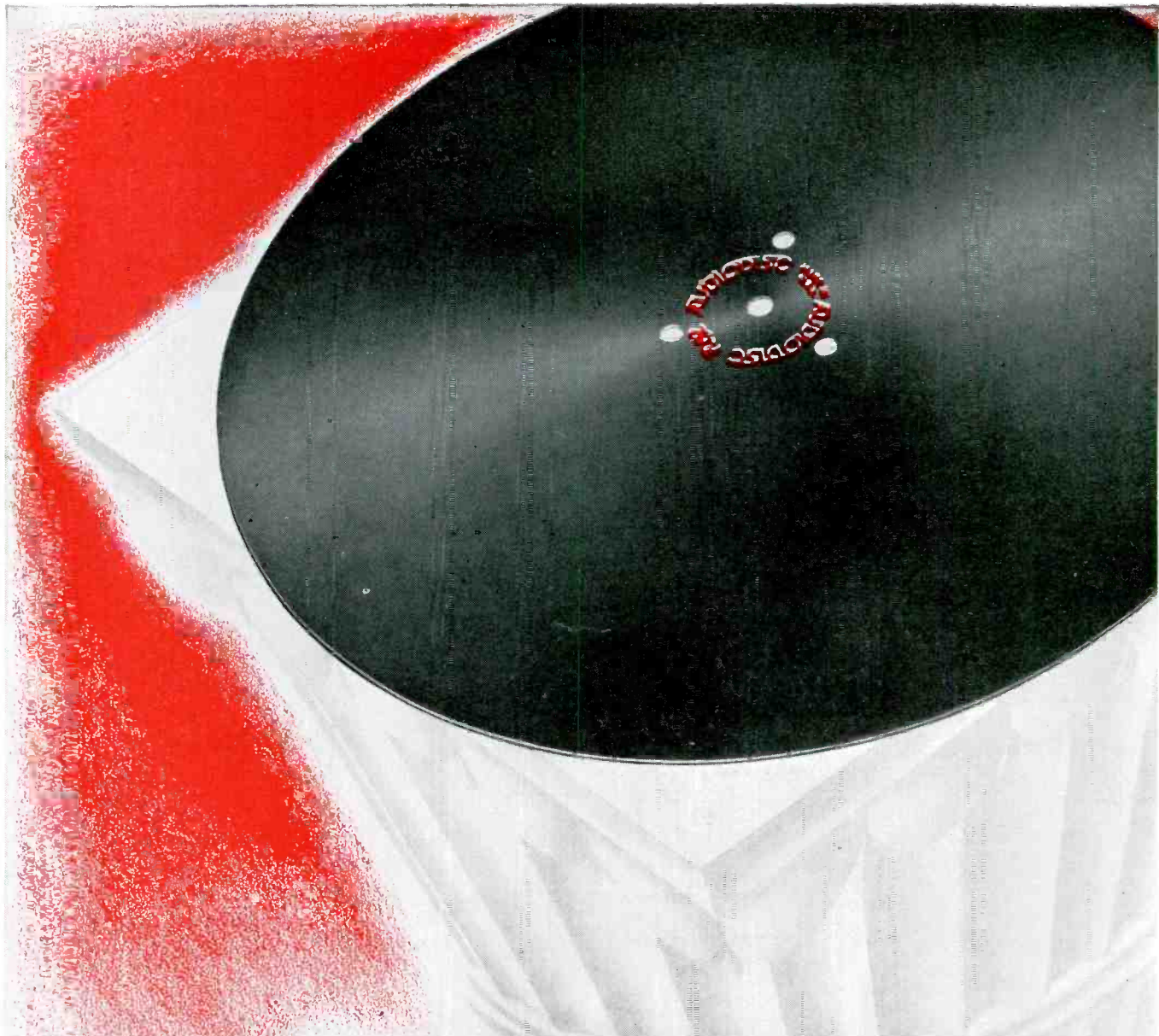
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Ed. Stolzenberger

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Business Mgr.

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## A Message to the Members of NABET

from

JOHN R. McDONNELL  
President, NABET

With the completion of the local Chapter elections, I would like to take this opportunity to express my appreciation of the fine work which has been performed for NABET by the 1947-8 National Council. Thru a year filled with many new problems and difficult situations, the work of the Council has created a new solidarity within the Union, and made it possible for us to look confidently to new gains in the future. I am sure that my personal gratitude to the Council is shared by the membership of NABET at large.

In welcoming the new members of the National Council, I would like to extend my congratulations upon their election to such a responsible position in the Union. The future of NABET will depend to a great extent upon the quality of the leadership during the next year. We will have many problems to solve during 1948 and '49, but none of them will be insurmountable if we continue to face them aggressively and with a spirit of cooperation.

To the members of NABET: Any permanent success that our Union has had in the past or may hope to achieve in the future depends ultimately on you. In a democratic organization, the wishes of a majority of the membership determine the course of its leadership. During this next year, your National Officers will need your support and cooperation even more than in the past if NABET is to achieve the goals and aims we have set for it.

Sincerely,

(Signed) J. R. McDONNELL,  
President.

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

*Heading Cuts* for Chapter news columns. Chapters without regular heading cuts and desiring same, should send in photo, cartoon, or drawing of subject matter that they wish used to identify and distinguish their column.

*Ham Issue Scuttled:* Instead, descriptions and photos of NABET Ham Stations will be published as received, following several suggestions indicating this preference. *Ham Calls*, however, will be published on an annual or semi-annual basis, as revised lists are received from individual Chapters.

DO WE HAVE  
YOUR ZONE  
NUMBER?

# Report On F.C.C. Hearing Relative To 1st Class Radiotelephone Operator's License Requirements

The license hearings were held Monday, May 10th, in the Inter-State Commerce Building, Hearing Room A, Washington, D. C., before Commissioners Sterling, Durr, Walker and Chairman Wayne Coy.

Present at the hearings were:

FCC Counsel: MacClain and Stillane.

NABET: Attorney Thomas X. Dunn, Executive Secretary H. E. Hiller, and Nat'l Representative C. L. Gorsuch.

IBEW: R. A. Wood of Local 1212, N. Y. C.; S. L. Hicks of Local 1229, Charlotte, N. C.; Lawson Wimberley of the International Office.

ACA: Not represented, but sent telegram.

IATSE: Not represented. NFW: Not represented.

NAB, Counsel Byron Rea, and Director of Engineering R. V. Howard.

Testimony given by the NAB was of such a poor nature that the impression gathered by your NABET representatives was that the FCC was not convinced of the necessity of any lower grade operator's license.

The trend of questioning by the FCC indicated rather a desire for information from witnesses to determine if a single grade or class of operator's license with an additional examination for FM-TV and DA (directional antenna installations) would be agreeably received.

Both NABET and IBEW were in favor of such an up-gradnig.

Prior to the hearing, the following NABET brief was filed with the FCC:

## MEMORANDUM ON BEHALF OF NATIONAL ASSOCIATION OF BROADCAST ENGINEERS AND TECHNICIANS

### Re: Proposed Rule Making Changes for New Classes of Operator Licenses for Broadcast Service.

It is our understanding that the Commission proposed by its notice of rule changes to down grade the radio telephone operators' license so that if the proposed rule changes are adopted a limited broadcast operator will be permitted to do the work in broadcast stations which was formerly done by first-class radio telephone operator.

It is the position of NABET in this matter, as it was its position on the proposed rules and regulations changes made by the Commission last year, that the hearing on these proposals was opposed to the procedure as set forth under the Administrative Procedure Act (Section 4(a)). As it appears in the notice there is no basis given for the proposed changes, nor is there any reason shown why the former method of licensing should be repealed. From all the evidence that we have in our possession there is now and has been for the past two years an overabundance of radio telephone operators, first class. Whatever the reason the Commission may have for the adoption of these new rules and regulations, the rules and regulations if adopted will only lead to a down grade in the radio telephone operators' profession, and an advantage on behalf of the smaller powered stations to obtain cheap labor to the detriment of the engineers.

Therefore, since the notice gives no reason or basis for the proposed adoption of these rules and regulations, NABET is not in a position to argue the merits or demerits of the proposed changes. The Union stands on its rights under the Administrative Procedure Act which requires that we be given an opportunity as an interested party, to present argument either for or against the proposed changes.

We quote from the Administrative Procedure Act as follows:

"Agency notice must be sufficient to fairly apprise interested parties of the issues involved so that they may present responsible data or argument relating thereto." Senate Committee Report, 1945, page 14 (Section 4(a)).

"Prior to public procedures agencies must conduct such non-public studies or investigations as will enable them to formulate issues or where possible to issue proposed or tentative rules for the purpose of public proceedings and reports may also be issued as aids in securing public comment and suggestions." House Committee Report, 1946, page 24 (section 4(a)).

"Notice must fairly apprise interested parties of the issues involved so that they may present relevant data or argument." House Committee Report, 1946, page 24 (Section 4(a)).

We submit that by the notice received by the Union, no issues have been formulated and we have not been appraised of the basis and reasons why the proposed rules and regulations should be adopted or not adopted, as the case may be. The notice should be withdrawn by the Commission.

## NATIONAL ASSOCIATION OF BROADCAST ENGINEERS & TECHNICIANS

By Thomas X. Dunn, (s)—Attorney.

Exhibits produced by the FCC answered the questions propounded by NABET at the first hearing, and showed that to March 31st, 1948, there were an estimated 31,000 FCC-licensed First Class Radiotelephone Operators, and that as of the same date, the entire broadcast industry, AM, FM, and TV only employed 15,900 of the First Class licensees at its 2,996 stations.

This evidence clearly indicated that the entire industry employed only 50% of the available First Class licenses. Even though this evidence was indisputable, it was further and conclusively corroborated when, within the last half-hour of the hearing, Exhibit 4 produced by the FCC consisted of statistics which in the final analysis showed that since Jan. 1, 1948, not a single request for temporary waivers of the First Class Radiotelephone Operator requirement for broadcast stations had been received by the FCC. This proved conclusively that no shortage of First Class Radiotelephone Operators exists as claimed by the NAB in their attempt to show a need for lower-grade broadcast station operator license requirements (and of course, lower salaries for the lower technical requirements!).

The FCC decision is expected to be announced in time to be reported in our next issue.



## Introducing: George Maher NABET National Representative

Accordingly, in 1933 I signed on with NBC in San Francisco as a Studio Engineer. These were the days when the NRA stood between lots of people and starvation and January 1st, 1934, ATE was born as it were, which brought about a miraculous change from the \$125 a month we were then earning.

Being a charter member of ATE affords an opportunity to see, in proper perspective, the accomplishments of ATE and, most latterly, NABET.

After three years in San Francisco an arrangement was made whereby I moved to Chicago and C. E. Pickett moved to San Francisco.

Nine happy years were all I could stand at NBC in Chicago and with the lure of the gold to be made in the Advertising Agency business bedazzling my eyes, I left NBC in December 1944 and became associated with Schwimmer and Scott Advertising Agency as a radio director.

After getting my feet thoroughly wet in the agency field, I did a year or so of free lance production work in Chicago and, as a final fling in the agency picture, established an agency in conjunction with William Futterman. This lasted for about seven months before my ulcers and the long arduous hours of labor at the various bars in Chicago took their toll and necessitated my changing to a nice quiet and peaceful atmosphere. Hence, my connection as Advertising Director of Stenographic Machines in Chicago.

However, peace and quiet were not conducive to peace of mind when full consideration is given to trends politically and socially in the country so, when NABET opportunity presented itself, I availed myself of the chance to attempt to do something about the situation."

And George wasted little time. During the short month that he has held the office as national representative for the mid-west, George has established an office at 80 E. Jackson Blvd., Room 543, Chicago, Illinois with phone number Wabash 2462.

Plunged into a maelstrom of strife and activity George has become almost a stranger to his family circle. Renegotiation of the WOW contract was made doubly difficult by the necessity of dealing with new ownership of WOW who were unfamiliar with amiable relations between previous ownership and NABET. Nebraska's new anti-labor legislation did little toward effecting agreement between NABET and WOW. However George was successful in negotiating a contract with increased wages and clauses adequately covering television. While in Nebraska he also signed up other stations for NABET. And, George is currently engrossed in negotiating a new contract between NABET and Gene Dyer owner of WAIT. Thru George's efforts several stations in Ft. Wayne, Ind., have joined NABET. In this short period of time he has so successfully operated his office that the west coast has even tried to borrow his services.

"Autobiographies are a burdensome undertaking, but with Ed Stolzenberger and Minor Wilson breathing down my neck and Art Hjorth snapping pictures like the typical newspaper photographer, I have no choice but to comply.

Thought perhaps I could refer the issue to an old ATE Journal dated April 1939 in which a very flattering biography was written by F. C. Shidel in my behalf. But it seems that considerable water has passed over the dam in the intervening nine years so, here goes.

Some pertinent facts have not changed since 1939. Namely, the place and date of birth, which are Kansas City, Kansas and December 30, 1911, respectively.

And, too, the fact that I went to high school at Wilson, Arkansas (the garden spot of Arkansas). After which in 1927 I enlisted in the U. S. Navy for four years and actually served six years before I was able to extricate myself. Seems there was a depression in 1931 when my four years were finished, so an extension for two years seemed in order.

### RE: WFIL STRIKE

My Friends in NABET:

Do not fall for the publicity blurbs put out by WFIL, that a jurisdictional dispute exists at WFIL. The men are out 100% solid. Charlie Colman turned down their offer of \$2,000 extra and an Ass't Chief Engr's job if he'd scab.

We have been negotiating (stalling) over two months now, and during all that time, not a single offer of more cash was mentioned. In fact, they would not discuss money. The negotiations consisted of us being badgered into conceding to the weakening of contract privileges and working conditions we had won over the past 12 years, without knowing if there would be a single penny raise. We now get wages prevailing in Philadelphia back in 1945. Even little 100-watt WHAT, pays higher than WFIL.

All during negotiations, Roger Clipp has tried to get our TV men into IATSE, to weaken the ACA position, and our bargaining position as a whole. On the day our contract was to expire, they produced a self-serving letter from IATSE, pur-

porting, but submitting no valid evidence, to representing majority of the men. This had no legal standing whatsoever. If IATSE had the necessary 30% signed up, they would have filed with NLRB and made it legal and binding. But the company used IA's letter as a peg on which to suspend negotiations, so we struck, instead of delaying further until the company could muster for IA the remaining votes.

I believe they approached you to get in the swim here; then they called IBEW in, after they saw IA couldn't swing it; but the more they try, the stronger and more solid we stand. Please have your men, as some already have, decline to violate our picket lines. It is NOT a jurisdictional dispute. The company has every legal right to continue negotiations and sign a contract—which was all completed except for hearing their wage offer. Since we had to strike, we will now insist on all of our original claims and past gains being retained. ABC, TV and AM shows are being mangled horribly; operating is being done only by mail boys, clerks and salesmen.

"73"—E. T. Darlington.



# Recent I.R.E. Convention

## Highlights and Trends

As a direct result of FCC Chairman Coy's comments, the RMA Board of Directors has authorized a joint RMA-IRE engineering study of the adaptability of the upper bands between 216 and 1,000 mc for television broadcasting. Radiation from television receivers, one of the important causes of TVI, will also come under the jurisdiction of the joint committee.

It was related that as of the first of this year, the FCC has licensed 3,551 broadcasting stations of all types, AM, FM, television, etc., and 112,137 non-broadcasting stations of which 75,000 were amateurs. These non-broadcasting services range from aviation and maritime aids to the mobile communications services of taxicabs, buses and trains, and miscellaneous public service and industrial uses. The Citizens Radio Communication Service may very well exceed all other services combined.

At the opening technical session Dr. Robert Adler, research expert of the Zenith Radio Corporation of Chicago, described a new radio tube, somewhat like a miniature cathode-ray bulb, which is expected to make possible "greatly simplified circuits" in FM receivers, provide greater ease of circuit adjustment and tuning by the home operator. He described the tube's action as follows:

"A beam of electrons shaped like a thin sheet is projected against a grid. In operation, this grid alternately passes the beam or cuts it off entirely. Receivers built with it perform as well as the best in existence but are easier to tune and contain fewer parts, therefore are more economical to manufacture."

Known as the "Gated-beam tube," the new device is said to represent a distinct step in the direction of good but cheap FM receivers, "retaining all the superior features of this advanced type of broadcasting."

It was explained that the new device operates as an ideal FM "limiter," a vital part of the conventional receiver circuit and one of the basic factors of the Armstrong FM patents. Dr. Adler went on to say that his device is an almost perfect "rejector" of ordinary broadcast or amplitude-modulation signals, believed better in this respect than the "grid-bias" limiter, and does its work without benefit of external circuits. A new system of

broadcasting employing recently developed single-sideband techniques, described by D. E. Norgaard of the General Electric Company, makes it possible to develop "binaural" or two-channel transmission of sound, thus presenting a concert in its true tonal dimensions as one hears it in the concert hall.

"Broadcast transmitters, to utilize the advantages of binaural or natural hearing," he went on, "may be of the dual single-sideband type, modulated by the same program but picked up on two microphones, which control each sideband separately."

"Using special dual-sideband receivers, the two channels supply two separate loudspeakers and provide binaural reception." This has long been the goal of music lovers for natural high-quality reception of concerts. Mr. Norgaard went on to say that the band in the ether is no greater than for ordinary broadcasting, and that it is believed such a system has distinct possibilities for high-quality broadcasting in the future.

"Reflected power," said to make possible the creation of small supersonic "sound" or light waves, using no vacuum tubes, circuits or power apparatus, was described by Dr. Harry Stockman, chief at the communications laboratory of the U. S. Air Force's Watson Laboratories of Cambridge, Mass. The system was recently released from the confidential files of the Government. Such communication, it was said, can be highly secret. Its uses are said to be indicated for ship-to-ship, plane-to-plane and ship-to-shore circuits.

A mechanical generator of high-frequency waves, for instance, transmits a beam of frequencies at a distance target, say a military outpost, from which a secret message is required. Nothing happens until the beam at the distant point is reflected back to the sending point after being modulated with the desired message. When this happens both the message and the beam return to the sending point and the mission is accomplished.

Only the smallest and simplest of apparatus is required at the point from which the message is required. The use of such a system for military operators is obvious.

E. J. Barlow of the Sperry Gyroscope Company, Great Neck, N. Y., described a

To page 8



Edward Wade

We were stunned to learn of the premature death of our friend, confidant, attorney, and fellow television engineer Edward Wade, on May 4th, 1948, at the age of 43.

He was born Feb. 3, 1905, was graduated from DeWitt Clinton H. S. in 1923, received his LL.B. with honors from Fordham Law School in 1926, was a member of the New York State Bar Association, practiced law with the Empire Title Co., the Title Guarantee & Trust Co., and the law firm of Tanner, Sillocks & Friend. Wade was technically-bent, however, and in 1937 he left the active practice of law and enrolled with the RCA Institutes, and was graduated from the television course in 1939—again at the top of his class. Upon graduation from RCAI, he joined Kolorama Labs working in television, and in 1940 he became a Lab Assistant with the RCAI. Wade joined the NBC Engineering Dept. as a television development engineer in 1941. At the outset of the war, his above-average skill, education, and experience was certified by the personnel division of the Office of Scientific Research & Development, and he devoted more than full-time to a number of government military television projects, all of which were very successfully consummated. Following the war, Wade continued with the further development of NBC's television plant facilities, practically to the moment of his passing—which resulted from a spinal-nerve operation to relieve him of a severe hyper-tension condition.

The journal has lost a loyal friend and valuable member of its advisory staff, and the television industry has lost an ingenious and inspired engineer. It is with extreme regret that we write a very untimely "30" to a true friend and a keen mind.

—ED. STOLZENBERGER.

“doppler” radar system which is said to be capable of detecting a single moving object among a great many other objects from which such waves may be reflected in space. It was said that the system may be applied even for the determination of the velocity of projectiles such as shells or rockets. The location of spies moving about a war plant, hidden in shrubbery but clear to the doppler radar, is one of the proposed uses. The system is operative, it was said, over ranges from a few feet to several miles. The device is said to be able to detect a single moving target and accurately measure its location.

F. J. Gross of the Civil Aeronautics Authority described a course line computer for use by airmen. It is said to enable an air pilot to draw a line on a chart and fly that line under any condition of weather, choose a destination on the line and arrive at it within approximately two miles of possible discrepancy. The pilot selects his track on the chart by adjusting three dials on the computer.

Scientific strides in the television art that hasten the day of better video reception, lower-cost manufacture of sets and color television in the home were announced at the annual convention and radio engineering show of The Institute of Radio Engineers at the Hotel Commodore and Grand Central Palace.

The developments were revealed in papers presented at technical sessions devoted also to progress in broadcasting and recording, electronic tube manufacture, and measurements in the microwave field.

Two of the papers were reports on exhaustive surveys and studies aimed at ironing out problems of television transmission, as well as reception.

One, presented by T. T. Goldsmith, Jr. and R. P. Wakeman, of DuMont Research Laboratories, Passaic, N. J., stated that long-distance television reception “is not necessarily a desirable condition,” because it would cause interference on tele channels already allocated in cities throughout the United States.

The other, by Andrew Alford and G. J. Adams, of the Andrew Alford Laboratories, Boston, presented theories, microwave model studies and whole-scale measurements of reflections from tall buildings—all designed to simplify the problem of selecting the best possible site for a television station, including the most economical transmitting antenna height.

A new device that “advances the art and technique of testing the television receiver and is a long step toward improved and lower-cost manufacture of television

apparatus” was described in a paper presented by Allan Easton of the Hazeltine Electronics Corporation, Little Neck, N. Y.

Called a picture modulated r.f. generator for television receiver measurements, it is described as enabling a manufacturer far removed from the television broadcasting station to test his receivers with picture signals free from noise and interference. It also can be used where television broadcasting scheduling is still intermittent and unreliable.

“It is the forerunner,” Mr. Easton said, “of low-cost television service test equipment, which may eventually be used by every television service man to test, align and repair television receivers more rapidly, efficiently and at lower cost to owners of the sets.”

Color television was covered by F. J. Bingley, of the Philco Corporation, Philadelphia, in a paper, “The Application of Projective Geometry to the Theory of Color Mixture.” “It provides,” Mr. Bingley explained, “a new theoretical tool for engineers to use in solving several basic problems in color television. The end result probably is several years hence, but the application of this theory should help in achieving television of better quality at an earlier date. It provides theory that is useful in solving problems confronting engineers before color television can be brought into the home.”

The Goldsmith-Wakeman paper, “Field-Coverage Consideration of New York Television Stations,” was based on a six-month study in which 1,500 measurements were made and 500 photographs taken within a 50-mile radius of New York City. In addition to the ground survey, measurements were made from a B-25 which flew 2,000 miles within a radius of 200 miles of New York City.

The survey upset a popular belief once held by the lay public—that television reception is restricted to line of sight, that a person at the receiving antenna should be able to see the transmitting antenna on a clear day.

“This is not true,” the scientists declared. “Actually the signal strength simply decreases quite rapidly beyond the horizon of the transmitting antenna. That there is sufficient signal to produce satisfactory television pictures far beyond the horizon—even 125 miles from the transmitter—has been demonstrated frequently, and our survey substantiated this fact.”

They pointed out that great variations in signal strength beyond the horizon were observed with changes in the atmosphere, and that these may occur very

rapidly, or that the variation may be a slow change throughout the day, or season.

“Unfortunately,” they concluded, “this long-distance reception is not necessarily a desirable condition. Television channels have been allocated in cities throughout the country with what was believed to be a sufficient margin of safety so far as mutual interference between stations is concerned. For example, channels 4 and 5 are allocated in both Washington and New York. Recent experience indicates that these long-distance effects may cause serious reception difficulties in the service area of any of the four stations involved—WNBT, New York, and WNBW, Washington, channel 4, and WABD, New York, and WTTG, Washington, channel 5.”

Mr. Wakeman and Dr. Goldsmith pointed out that the survey “clearly demonstrated” the desirability of locating a transmitting antenna well above any structures in its immediate vicinity.

“This precaution,” they said, “eliminates the possibility of ghosts which originate in the vicinity of the transmitter and which cannot be removed by anything done at the receiver or receiving antenna. Higher power at the transmitter will increase the signal-to-noise ratio at receivers throughout the service area. These two changes at the transmitter would permit a cleaner, more stable picture. At the receiver location, the antenna should be installed as high up and as far away from noise sources as practicable.”

## FM NEWS

\*\*\*FM Assn. reports 84% of FM stations are broadcasting popular network programs. 444 FM stations now on the air.

\*\*\*FM Assn. recommended revocation proceedings against FM permittees who are negligent in putting their stations on the air.

\*\*\*FM Assn. calling on receiving set manufacturers to produce “FM only radio receiving sets at the lowest price possible consistent with high fidelity performance.” Also questioning every FM broadcaster regarding negotiations with AT&T for high fidelity wire lines. FM Assn. has opposed AT&T’s proposed FM rates “as exorbitant.”

\*\*\*Cincinnati installing FM radio in its trolleys and busses, to be fed five minute commercial spots for the commuters—and at a profit to the transportation company.

\*\*\*RCA experimenting with 50 kw FM transmitter, said to be first commercial high power unit operating in the 88-108 mc band.

# Important Excerpts From Dr. H. B. Richmond's Speech Before the Recent I.R.E. Convention

It is always a pleasure for us to listen to a speaker of the stature of Dr. H. B. Richmond, Chairman of the Board of General Radio Company. Following are some of the highlights of his speech before the recent IRE Convention in New York.

"... There have recently been some dire predictions as to the impending surplus of radio engineers, and there are many indications that such a condition may materialize. It is, however, my belief that any such surplus will result more from inadequate technical training, which limits employment to levels below the aspiration of the young engineer, than from lack of employment opportunities..."

"... the IRE is a technical society and not a trade association..." "I firmly believe that in the interest of national security, some way must be found to keep a substantial part of the younger engineers of our industry in intimate contact with the development and actual practice in the use of current military equipment in the electronic field... It is the military situation, nevertheless, that provides in the immediate future one of the large sources of employment in the electronics field..." Broadcasting in its many forms, including television, will require an increasing number of engineers, both in the design and manufacture of receivers and in the installation and operation of equipment..." "I shall be greatly surprised if degree-holding personnel in the very broad electronic field does not increase twentyfold in (the next) twenty-year period..." "the industry is currently operating at a level not less than twice that of a few years ago, but by the end of the next two years an increase of about fourfold in the supply of young electrical engineers—is indicated..."

"Finally when the student has graduated and entered on his employment, no subject is of more interest to him than pay..." "Competent engineers sometimes complain that technical sales positions and administrative positions pay higher salaries to persons considered by the engineer to be less competent than himself. Such a person may also have had less academic training than the complaining engineer. The law of supply and demand is inexorable in the long run and it, nearly alone, determines pay rates, barring of

course, temporary controls. If there is a shortage of chemical engineers and a surplus of electronic engineers, the chemical engineer will be the higher-paid. That situation currently exists..." "the highest paid group of engineers are those holding non-technical management-administrative positions, with those holding technical management-administrative positions coming second..."

"... For about a quarter of a century, the General Radio Company has had a semiannual bonus system in which each person in the entire organization is individually rated and these ratings are coordinated by a single committee known as the Personnel Committee. In addition to the rating points, there are multiplying factors which take into account rate of pay and responsibility. After ratings have been completed, the amount allocated to the bonus is divided by the total points, and then each person receives his individual share of the total bonus, depending on his point value. There is also a profit-sharing trust where all earnings over six percent are divided equally between the stockholders and the trust. This trust becomes a sort of emergency reserve for each individual employee, or it may serve to supplement the established pension payments.

"The greatest incentive to engineers and executives, however, is what is called the K system, which has been in effect for over 15 years. Under this system, each salaried employee has a base rate of pay which is competitive with that of other companies for similar positions. Regardless of whether overtime is asked of him or whether he is on short time, the base rate remains unchanged. At the start of each month, however, he is notified what K for the coming month will be. His base rate will be multiplied by this factor. For the calendar year 1947, K averaged 1.27; thus a \$500-a-month man would have received an average monthly pay of \$635 in addition to any profit-sharing or other general bonus payments.

"K can be less than one as well as more than one. There is published a K table which is made up of three factors, new orders received, shipments, and factory production at estimated billed prices. These factors have equal weights. A K of unity is placed at substantially the

break-even point. The figures for the previous month determine the value of K for the following month. The K value is announced on the second or third working day of the month to which it applies. Our total personnel is in the 400 to 500 bracket, and 15 per cent of them are on the K system.

"It has been felt that this incentive system has worked very well. It is often interesting to see the ingenious methods which have been taken by supervisors to boost one or more of the factors determining K when it has been observed that a decline in K is indicated. A chart of the weekly figures affecting K is published during the month so that there is always a fair indication of what the next value of K is to be.

"While persons in the higher tax brackets gain little as K is increased, their interest is just as keen as that of those in the lower tax brackets. Such an interest must mean that satisfaction from meeting the challenge is as great as that of the additional financial reward."

## MORE FM NEWS

\*\*\*WMAS-FM, Boston, now on the air with a W.E. 1 kw transmitter.

\*\*\*Bill Bailey of FM Assn., estimates over 1,000 commercial FM stations will be on the air by end of 1948.

\*\*\*FM Assn. has asked FCC to alter FM license period from present 1 year period, to 3 years, saving much time and expense all around.

\*\*\*G. E. Co. reports over 10,000 attended their FM traveling workshop in its 10,000 mile tour around the country.

\*\*\*FM Assn. contemplating something akin to a combined FM broadcast and facsimile service, in its challenge to AT & T's restrictive proposed tariff, which if established, would prohibit simultaneous use of 15 kc lines for both FM and facsimile.

For Information About  
N A B E T  
Contact Any Officer.

★ See Page 4 ★



# Review of Current Technical Literature

By Lawrence W. Lockwood

## Bell Laboratories Record—March, 1948

### Terminals for the New York Boston Radio Relay System—J. Chaffee

A short description of equipment and operation of a typical link in the New York Boston radio relay system used for television.

## Communications—March, 1948

### A TV Sync Stretcher—R. Palmer

Self-powered unit has dual outputs, sync expansion and line-to-line clamping and HF response extending to 5mc. Clamps are four diode bridge type which is relatively insensitive to balance between positive and negative clamp pulses. Sync clips clipped by shunt-crystal diode. Rapid clamp action provided.

### Enlarged WOAI/WOAI-FM Studio Technical Facilities—C. Jeffers

Installation of FM transmitter required complete revamping of studio facilities for dual AM and FM operation. Additional facilities include second announce room, larger recording room, additional control booth and preset-type switching system in master control room.

### Eliminating Interference Resulting from Coupled Antennas—F. Butterfield

Solutions to interference problems prompted by simultaneous operation of transmitters whose antennas are close together. Filter system evolved for 250 watt, 1450 kc WHMA and 250 watt 1490 kc WOAB, with towers 560 feet away from each other.

## Test Instruments in the Broadcast Station—H. Eidson, Jr.

Characteristics and operation features of typical test equipment employed in broadcasting today—volt ohm-milliammeter, audio oscillator, scope, distortion and noise meter, capacitor bridge, vacuum tube voltmeter, signal generator, RF bridge, decade resistor box, field strength meter, etc.

## Proceedings of the IRE—March, 1948

### A Proposed Loudness-Efficiency Rating for Loudspeakers and the Determination of System Power Requirements for Enclosures—H. Hopkikns and N. Stryker.

Experimental and computed data relating to the loudness contribution of various ranges of the frequency spectra of speech and music are correlated with the corresponding energy distribution. A loudness efficiency rating for loudspeakers is suggested, and its application to sound-system engineering problems is described.

### Limiting Resolution In An Image Orthicon Type Pickup Tube—H. De Vore

An analysis is made of some of the factors which limit the resolution in a television pickup tube of the image orthicon type. Particular attention is given to effects of the glass target characteristics and to departure from perfect focus in the image section, resulting from electron emission velocities. The general effects of target thickness and of color of incident light discussed herein have been confirmed experimentally.

### An Inductance-Capacitance Oscillator of Unusual Frequency Stability—J. Clapp

An LC oscillator having unusual frequency stability is described and briefly analyzed. The circuit is similar to the Colpitts with an LC series circuit replacing the inductor.

### Home Projection Television (Pt. One)—J. Rinia, J. DeGier and P. van Alphen

A comparison of direct viewing with projection tubes leads to the conclusion that the latter are better suited to provide a picture of adequate dimensions. The characteristics of a 2.5 inch cathode ray tube for television projection in an average living room are described. For projecting the image on the viewing screen a modified Schmidt mirror system was adopted.

### Home Projection Television (Pt. Two)—G. Siezen and F. Kerkhof

The performance of rectifier circuits of the voltage multiplier type, energized by voltage pulses occurring in an inductive load in the plate circuit of a sawtooth driven, biased beam power tube is briefly analyzed. An exceedingly compact high voltage supply having automatic voltage control and furnishing 25 kilovolts for projection-type television tubes is described.

### Home Projection Television (Pt. Three)—J. Haantjes and F. Kerkhof

High efficiency magnetic deflection circuits which are equally adaptable to projection and direct viewing television receivers, and a method of obtaining perfect interlace by utilizing the first serration in the vertical synchronizing signal are described.

### Circle Diagrams for Cathode Followers—J. Diamond

Universal circle diagrams are developed which represent the gain, input admittance, and output impedance of the cathode follower. The variables are transconductance and the components of cathode load. The Colpitts oscillator is considered as a cathode follower and is analyzed with the aid of the circle diagrams, and also algebraically.

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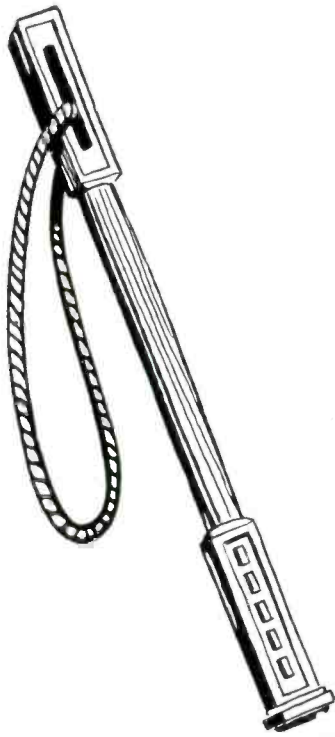
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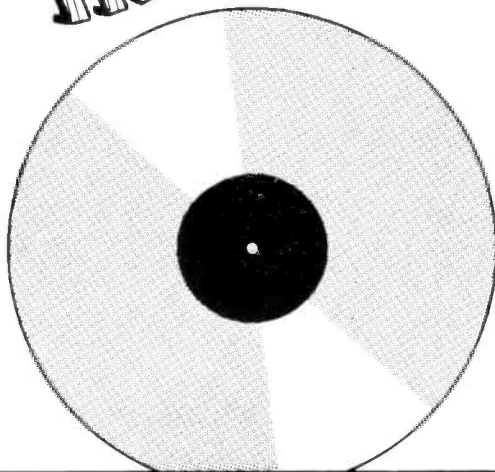
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**Radio and Electronics (New Zealand)—  
March, 1948**

**Tone Control Systems—C. Leslie**

Short discussion and simple description with brief theoretical treatment of various types of tone controls.

**Tele-Tech—March, 1948**

**What's Ahead in TV Receiver Engineering?—Dr. A. Murray**

Public's demand for larger pictures, elimination of receiver radiation characteristics, lower cost sets pose some of the problems for TV engineers to solve.

**Big Picture Practices**

Direct view, reflective and refractive projection and lens magnifiers are some of the methods in use and being developed by TV engineers to meet demands for larger pictures.

**Resonance Indicator for Passive Circuits**

Grid dip meter revived for use in design checking and routine service test; covers FM and TV bands—down to 2 megacycles.

**New Viewing Tube for Color TV—A. Bronwell**

New cathode ray tube identified as the "chromoscope" contains single electron gun and composite color screen; operates in sequential color system (electronically).

**How WABD Handles Remotes—O. Freeman**

DuMont crews with modern apparatus make handling of program sources a science—Microwave and coaxial technics.

**Electronics—March, 1948**

**Space Charge Tetrode Amplifiers—N. Pickering**

Performance of developmental space charge output tetrodes is compared with that of 6K6 beam pentodes, and 45 triodes in push-pull output stages of high quality amplifiers. Developmental tubes not only outperform other types, but also require less costly components and simpler circuits.

**Direct Reading Wavemeter Design—G. Feiker and H. Meahl**

Construction details of direct reading wavemeters for the range from 2 to 75 cm (15,000 to 400 mc.). Theory behind maintaining linearity of wavelength change to conductor displacement is given for cavity devices of finger contact and re-entrant line short circuit type.

**Wow Meter for Turntable Testing—G. Sansbury and E. Pappenfus**

A toothed wheel rotating between two pickup coils con-

nected for maximum output generates a tone. Output is fed through a peak clipper to a discriminator and rectifier. Instantaneous speed variation is shown directly on a calibrated meter.

**FM and Television—March, 1948**

**New Ideas in Studio Design and Operation**

Seattle station sets interesting precedents in plan and facilities for FM-AM broadcast center.

**Visual FM and TV Alignment—L. Libby**

There are big profits in FM and TV service but new precision instruments are required.

**The Microwave Handbook—S. Freedman**

How waveguides carry energy at microwave frequencies (Part I.)

**An Amplifier and Noise Suppressor Unit—H. Scott and E. Dyett Jr.**

Characteristics of the H. H. Scott 210-A amplifier designed with a built in dynamic noise suppressor.

**Film Pickup System—H. Smith and G. Gregory**

An engineering description of DuMont equipment for handling motion pictures, slides and test patterns.

**Design of Studio Speech Input Systems—J. Green**

Plans which strike a balance between first cost, flexibility and maintenance expense.

**UNSOLICITED TESTIMONIAL**

During a recent trip in the Middle West by a NABET National Representative, solicitation in behalf of NABET had been made to a group of Engineers at a station that had been on the air for slightly less than a year, and the fellows were convinced that NABET was the logical choice for their union affiliation.

Previously, this particular group had been under pressure from a rival organization. However, they were not impressed with the rival organization and the job they were doing for the Radio Engineers they represented. So, as a last resort, the rival union started utilizing visitation groups composed of Engineers from stations in the same vicinity.

One such group had called on one occasion and, after the usual pleasantries had been exchanged, they were informed that their intended victims had decided to join NABET. Had, in fact, already done so. Whereupon, a rather lengthy discussion of the relative merits of NABET as compared to their own organization ensued, and the visiting group departed.

After an interval of a half an hour or so, one of the engineers on duty at the transmitter chanced to look out the window and noticed the car in which the visitation group had arrived was still in the parking area. Thinking that they might be having difficulty getting their car started he went out to offer whatever aid he might give them. Upon inquiry, it developed that nothing was wrong with their car and the cause of the delayed departure was made known when the spokesman for the visiting group asked: "Say, where can we get some applications for membership in NABET?"

**A N S W E R :**

**From any of the Officers Listed on Page 4!  
DO IT NOW!**

**NABET EMPLOYMENT SERVICE**

Due to the day-to-day changes in status and availability of unemployed NABET members, it has not been deemed practical to publish such a list of names in each issue of the Journal. Instead, each available member should immediately notify the National Office, with copies to his Chapter Chairman, of availability together with brief resume of experience, etc., and notify them immediately of any change in status or availability. The Chapter Chairman for the area, and the National Office, each of whom are called upon to fill vacancies, will thus be kept up-to-date to the mutual advantage of all concerned.



## CHICAGO

By Minor J. Wilson

Silently tiptoeing into the quiescent studio "J," previous to the start of Daylite Saving Time, I was astounded by the transformation that literally took place before my eyes.

Eight beautiful (and I say this with reverence) AMPEX tape recorders were being installed. Racks, amplifiers, monitor speakers, controls and miles of wire were being tied together with a rapidity that makes one wonder if these NABET engineers were the direct descendants of those who built the Pyramids.

New Supervisors for this operation, Joe Alusick and By Spiers were being ably assisted by key NABET engineers of ABC. Intermittently you would see one of the many new NABET members with ABC peering from behind a rack, with an expression of wonderment. Was ABC at Chicago always like this? No, but with ex NABET prexy Ed Horstman fighting the deadline of DST, the round-the-clock activity in "J" was a MUST.

Supervisor Bill Cummings co-ordinating the efforts of all and procuring materials to keep up with the demand was heard to mumble "even field was never like this."

Believe that ABC is proud of their Chicago NABET engineers, who made the impossible become a reality, for come Sunday morning April 25th, ABC was delaying their programs one hour as scheduled. Poking my nose in "J" that morning, Supervisor Joe Alusick gave me a quick glance and said, "Come back in about three weeks and I'll talk to you."

\* \* \*

NBC at Chicago also delayed their programs one hour using gramophone discs.

## BALTIMORE

The nominees for Chairman are John Lappe, who is the present holder of that office; "Butch" Stockslager, and Oliver H. Oliver, now the present Secretary-Treasurer. Next month we will send along the results of this election.

We had a case of petty thievery last month among the night employees of WITH. Page Reeder, midnight control room operator, left his watch lying on the master control console during the two hour—off the air—mechanical checkup period. While he was in one of the studios talking with the announcer, the negro porter allegedly dashed into the

control room and took the watch. They were the only ones in the building at that hour. The next morning Page reported the theft to the police and to Tom Tinsley, WITH president. The police said that the man answered the description of a man wanted in Virginia. They went around to the house where he was boarding and could not locate him, so they placed an officer at the station and waited for him to show up for work. He never showed up. Then the police instructed Mr. Tinsley that if the man came in for his pay to hold him and to call the detective bureau immediately. Mr. Tinsley did not believe that the man had stolen the watch so in a few weeks time when he came in for his pay, Mr. Tins-

ley paid him off. The man thus eluded the police and is still at large. The detectives uncovered the watch in a Baltimore pawn shop. Another employee, Oliver H. Oliver, had a radio stolen on the same night. It was in the Chief Engineer's office. Mr. Tinsley still believes the porter to be innocent despite all the evidence.

Well, comes the end of our little news review and we find that we must offer congratulations and perhaps consolation to Butch Stockslager who has succumbed to the inevitable. Yep — the poor guy has done it, he is in the state of social custom called betrothal. We don't know the lucky(?) girl's name, but congratulations to them from all of us here.

—Royce I. Heintz.

\* \* \*

Jimmy Daugherty, Field Engineer with Sammy Kaye these past months, spending much time in the deep south, silently crept into Chicago and out again, knowing that his sun tan could not be deepened by any time spent in "J." Jimmy will get married, for the first time, May 29th.

\* \* \*

Up again, down again, Harold Jackson, is a Supervisor again.

\* \* \*

Dolores Martin is the result of National Representative George Maher's intensive search for a capable secretary that would take an interest in NABET.

\* \* \*

Among the new men who have joined the NBC and ABC networks for the summer are: R. G. RAHNERT, F. W. RODEY, H. G. POWELL, T. J. BOWLES, FRANK BAIRD-SMITH, BOB DAILY, J. B. CASEY, R. S. BENNINGHOFF, H. L. HALE, D. R. FARNHAM, R. R. HAYWARD, ED JAMISON, A. B. KING, C. W. KELLER, F. A. SCIUTO, F. O. GENEUREUX, R. M. HENLEY, R. W. ORTNER, W. V. LESTER, A. B. OSTERHOFF, G. L. LUKOWSKI, D. R. CHENEY, DAN HOZAK and GENE CARTWRIGHT. These men are assigned to vacation relief, DST playback for the nets and maintenance. Never before have we had so many new faces to remember, not only among engineers but announcers and production men.

Harry Johnson's three kids are down with the measles. I say his three even tho at this writing only one is infected.

In his own words AL OSTERHOFF tells of his recent adventure: "At approximately 1:50 A.M. on a recent morning when returning home from work I was very unpleasantly greeted by a couple of characters who took their work very seriously. They approached me on a poorly lighted street approximately a block from home and informed me that I was the victim of a holdup, and after using very stern determination forced me to close my eyes and stand erect alongside a parked automobile while they frisked me and relieved me of my wallet. Figuring they were finished after taking my wallet (with the cash) I opened my eyes and before I had hardly seen out of them I was struck in the face by either a solid blow of the fist or a blackjack. Well—these guys financially embarrassed me temporarily. And incidentally they got the dough I intended to give WASHBURN for my initiation dues. Moral: NABET members should pay their dues promptly.

# DETROIT

VISITOR FROM MARS.....HARRY ECKLAND.....Chicago ABC blew into town April 10th to participate with yours truly in an hour bash addressed to ABC in general.....Seems as if the ABC outlet in Detroit.....not wanting to embarrass the station.....their name won't be mentioned.....let it suffice to say that initials are WXYZ.....do not have studio space available for the Detroit Symphony Orchestra alias the ABC Symphony.....soooo.....WWJ/NBC opened up its great big generous mercenary heart and proffered the use of studio S.....our stage.....Everything went per ABC specifications.....Eckland was a world of assistance and a good Joe.....He fulfilled our every expectation of a Chi representative.....Come back again.....Harry.....always happy to see you.

SPEED MERCHANT.....Never before known as an exponent of speed.....unless his pace tableside is taken into consideration.....TRUMAN (the human) OLIVER.....of WWJ/AM studio fame.....recently established himself as an A-1 hell-bent-for-election speedball of the old old school.....The day of ECKLAND's visit.....TRUMAN was elected to assist one of the visiting NBC firemen running the Quiz Kids show pickup locally.....Mrs. OLIVER's favorite husband took one look at the thirteen tons of equipment NBC always carries.....and decided to conjure up a slight tummy ache.....It was quite a feat.....no pun intended.....for TRUMAN who is considered one of our leading no-holds-barred eaters has a lot of front.....but he made the grade.....He didn't realize his power of mind over matter.....for by six PM his pot was REALLY boiling.....Calling his bluff.....we sent him to the hospital where the medicos carried the ball even farther by taking out his appendix.....Until we found out he really had a tummy ache.....we thought the Sunday weary saw bones had gone just a little too far.....At this writing.....TRUMAN (the human) is back in service.....and is once again cheerfully chomping his way through eleven meals per day.

DOWN WITH EVERYTHING.....Last month we reported the festive gathering convened in honor of "Oooooooh, whatta tall one McDonnell".....apparently not all persons connected with NABET thought the idea a good one.....DAVY (little chum) STEWART.....hard working.....procrastinating.....sec-treasurer of the Detroit aggregation received some rather sulphurous objections from the

female of the species.....always the more deadly of the race.....apparently one or more of the dear wives are indignant at the thought of such a gathering being called without the dubious benefits of their company.....Personally.....I enjoy wholeheartedly an evening spent with fellow sufferers in the BC racket.....where I feel free to damn anything I choose.....from NABET to MANAGEMENT.....without first casting a bloodshot and bleary eye about to insure not violating the femininely tender eardrums of someone's wife.....or my own.....who really should be accustomed to it by now.....More stags are in order.....complete with beer.....bull.....buffet chow and the banishment of all women.....I am so married.....ten years.....and no scars.....(that show).

AHHHH BLISS.....The average ch. eng. has completely mastered psychology and is fully capable of analyzing the actions and reactions of we who plod stolidly from pillar to post.....from recording room to turntable room.....and who streak down the dark halls after each show.....If you don't believe this.....ask the first ch. eng. you meet.....and he'll tell you it's as true can be.....Here in Detroit we have an average staff.....you'll find one like it in NYC.....in Chi.....not to mention West of Dencer.....Some of our boys operate most efficiently with their footsies elevated to the MCR desk.....another category is at its peak in the soothing shade of a racing form or the sporting page.....and our genius of genius.....our Einstein in second gear can solve anything tipped back in a chair with his eyes at quarter mast.....Are they loafing.....or reading.....or sleeping.....? CERTAINLY NOT!!.....Without a single question of doubt.....they are dreaming of mysterious ways by which they can increase station revenue and prestige.....It must be admitted, however, that our explanation causes the ch. eng. to do several things in succession.....first, he raises his eyebrows in a delicate arch.....second, he screws his hat on.....third, he walks slowly down the hall.....shaking his head and counting his fingers.....not really sure if he is having.....or if he's been had.....We've discussed this rather uncomfortable situation at some length.....and have come to a conclusion.....namely that we need a new recording room.....and the only logical place for it is in the ch. eng.'s present office.....which coincidentally looks right in on MCR where all the aforementioned thinking takes place.....This means.....strangely enough.....the boss will have to move.....TaTa chief.....sorry to see you go.....drop in occasionally

any Thriday will be fine.....we'll serve baegles.....Actually.....our present recording room is so small.....even the mice are frustrated.....The placement of the stand-ard equipment in any dream recording facility has been the object of much to do about nothing.....each vital unit will occupy a place designed for its use.....and its use alone.....Now this situation poses another problem of no small import.....what with the Coke machine.....lounge.....reclining chairs and built in hot-and-cold chamber maids.....where in the name of the Taft-Hartley Bill and everything else that's unholy are we going to put our beautiful new RCA recorders.....Detroit reserves the right to censure all submitted suggestions.

SPRING.....The time when a young man's fancy turns to the same thing it's been turning to all winter.....time for planting.....and for loafing.....for reading and playing.....and now.....as one of your writer's red blood cells looks at a white cell and asks....."you been sick".....it is also time for Detroit to QRT for thirty days.....Luck.....guys.

—Red Lewis.

## TELEVISION NEWS

AT&T is filing proposed rates for television channels (wire, coax, and/or microwave link) at \$35 per month-mile for eight consecutive hours each day, plus "connecting" and other incidental charges.

RCA has signed three new contracts for 5 kw TV plants; they are going to WFBM Indianapolis; WLWC Columbus; and WFMJ Youngstown, Ohio.

Total TV set production since the war's end has passed the quarter-million mark. Current production rate indicates an annual output of 400,000 units.



Clarostat is marketing a permanent-magnet type of ion trap, in place of the



present electro-magnetic type now in use. Consists of two ring magnets held in a non-magnetic collar, fits neck of the usual 7" or 10" tube.

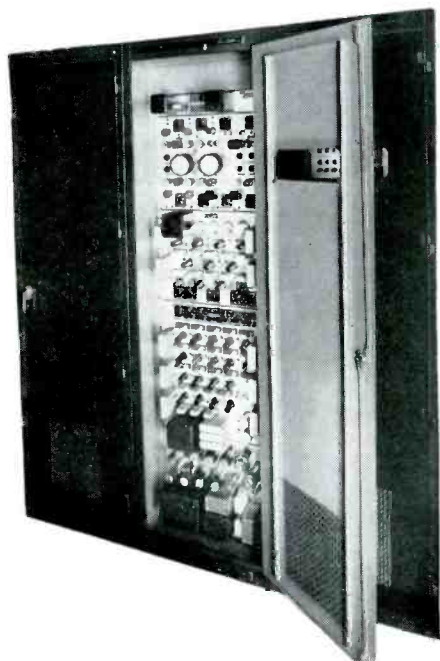
Four new RCA 5 kw TV transmitters sold to WMC, Memphis; WCON, Atlanta; WAVE, Louisville, and WJAR, Providence.

New York University just concluded a television survey of the sales impact of the medium, enthusiastic results.

RCA announces a new test generator, Type WA-3A, which produces grill-like patterns to check TV linearity of transmitting and receiving equipment.

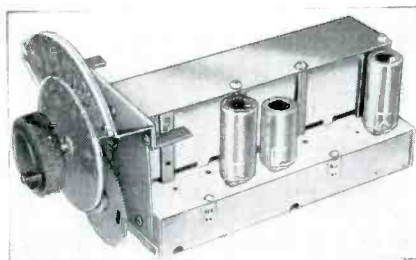


G. E. Co. has available 5 kw TV transmitters that meet or exceed the present FCC and RMA standards. These are being supplied to ABC Los Angeles and San Francisco outlets.



DuMont announces its Model TA-107 A/B synch generator, which supplies horizontal and vertical driving pulses, blanking signals, and synch pulses required by a complete TV station. Linearity-checking bar output signals are also provided.

DuMont has recently made available a TV-FM Inputuner, which is a compact, rugged assembly, simple to install. Requires no aligning, and provides con-



tinuous tuning from 44 to 216 mc, which includes all 13 TV channels, the FM band, amateur bands, etc. Uses a 6J6 grounded-grid RF stage, 6AK5 mixer, and a 6J6 separate oscillator; overall gain said to average 15.

The A.R.R.L., official radio amateur association in the U. S., has delved rather thoroughly into the matter of TVI—television interference, allegedly caused by amateur radio operation. Their report states that in one-half of the cases investigated, the real cause has been inadequate design and construction of the TV receiver. Investigation of TVI indicated the following ratios between various sources of TVI based on rating the most serious offender as 100:

a) ISM (diathermy) .....	100
b) FM broadcasting .....	70
c) Oscillator radiation from other TV receivers .....	50
d) Radio Amateurs .....	50
e) Intermediate-frequency pickup .....	20
f) All others .....	11

The ISM interference results primarily from industrial users of radio-frequency heating methods in their fabrication work, such as processing of plywood. The second harmonic of the ISM channel falls inside TV Channel 2. Frequency re-allocation is the only known solution, and is the solution sponsored by the A.R.R.L.

FM interference to TV reception, is the result of image-frequency response in the TV receiver "front end" and results naturally from inadequate TV receiver design. The RMA-TBA-FMA can readily clean up this problem by publicly announcing the TV sets it considers inadequate, and those that honestly meet the standards of the "current state of the art." The FCC has repeatedly gone on record as having "no sympathy" for the owner of a receiver (AM, FM or TV) that its labs determine to be "not modern."

The amateur TVI is well down on the list, and A.R.R.L. is proud of this fact. When properly notified, the amateur is legally bound to investigate, and take all measures consistent with the present state of the art, to reduce or eliminate inter-

ference with other radio services. However, as in the case of the ISM channel assignment, the second harmonic of the amateur 28 mc band falls in TV channel 2; frequency re-allocation is the only known solution, and is the solution sponsored by the A.R.R.L.

Direct I.F. pickup by the TV receiver is an out-and-out TV receiver fault. Most interference of this nature is pickup of short wave stations operating near 21.5 mc, which coincides with the response of some of the TV receiver's internal circuits. Receiver shielding and adequate design can be attained thru public opinion and education to "not buy" unless the TV receiver bears an RMA-TBA "modern design" warranty,—which is what a lot of people believe they are getting when they pay for installation and guarantee.

"All other TVI" includes automobile ignition, street signs, elevators, subways, etc., and is relatively unimportant.

## TRADE NEWS



Cannon Electric has added a 45° conduit coupling, a box connector, and conduit coupling adaptor to its Army-Navy Spec series of connectors and accessory fittings. Bulletin sheet available from Cannon Electric.



G. E. Tube Division announces addition of selenium rectifiers. Two models have been made available. They are one inch square. The forward voltage drop is only five volts; inverse leakage current is very low. Model 6RS5GH1 for 100 ma; Model 6RS5GH2 for 80 ma.

To page 20

# Whether RADIO AMPLIFIER or QUANTOMETER



PHOTO COURTESY RADIO STATION WOR & WESTERN ELECTRIC

Cannon Electric Type DPB Connector using gold-plated contacts in Studio Control Booth Console, Type 120 Amplifier in the low level side. Plug-in connector greatly increases ease of servicing and maintenance.

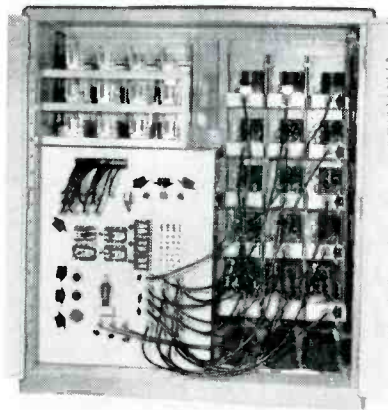


PHOTO COURTESY APPLIED RESEARCH LAB., GLENDALE, CALIF.

Arrows point to Cannon Electric Type "K" fittings connecting a maze of circuits on the Quantometer, a direct-reading spectrometer which determines chemical analysis of metals in 45 seconds. Rear view shown.



## WASHINGTON

By Warren Deem

No! that funny smell in the TV Studio isn't a camera burning up, it's just one of Ed. McCaul's 5 cent cigars.

And speaking of Ed, he is the owner of a home-built 8-ft. Dingy. Ed bought his boat in kit form last April and did the construction work in his basement. The plans have met with full approval by Mac McClelland, an expert on the lore of sailing craft. Mac's contract to build his 35-ft. Skip Jack was signed the first part of April and he is anxiously awaiting her completion. Johnny Rogers bought Jim Butts' 18-ft. Sloop Rig so when the boats are all completed and in first class condition invitations are extended to Jack Irving and other NY yachtsmen to compete in races with these Washington boats.

Heavy winds gave the field crew of WNBW a bad time during the Telecasting of the races from Bowie Race Track last season. The "blow" was felt all the way up in NY. There, people were sitting around TV sets slowly sipping their favorite beverage just waiting for the Bowie races to begin. No races came and the reason was the collapse of the micro-wave transmitter on top of the grand stand at Bowie. The crew was all set to go on the air, levels were set, the pictures were coming in good to Jim Weaver at Mastercontrol when all of a sudden a super gust of wind blew over the transmitter head and dish breaking the tripod and knocking off the probe of the klystron tube. An attempt was made to get the system back into operation, but by the time things were ready to go again too much program time was lost (fast horses) and the races never did hit the air that day.

# Plug-in with CANNON PLUGS

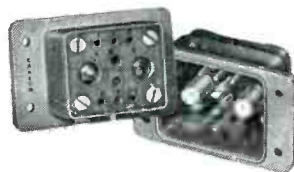


K-21 Plug



RK-24C Plug

**TYPE "K"**—made in 3 general shell types with nearly 190 insert arrangements available for a wide variety of wire sizes, including coaxials.



**TYPE DPB**—rack type pin and socket assemblies (both for fixed mounting) carry standard, coaxial and twinax contacts. Six basic layouts available in DPB, many more in the larger DPD shell size.



The new C-47 Catalog covers a great variety of multi-contact electrical connectors, electrical specialties such as hospital signal equipment, and various new signal lights, conduit fittings, terminals, lamp sockets, wagons, broilers, grills, sprinklers, etc.

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Some of the field engineers found the horses very slow. More dough was lost than won by the larger percentage of betting engineers that two weeks. Bob Doyle, producer of remote telecasts, came out way ahead though. It could happen only once in a couple of thousand races. Number 7 was paying 99 to 1 and so was number 11. That was a natural, so as Bob's preference was with 11 he decided to place his 2 to win on that nag. Lo and behold No. 11 came in first and with a cry of "I've got that number," a happy trembling Bob Doyle made his way to the ticket office to collect \$239.

I have quite a few new men to report about this issue among which is Roy Schneider. Roy is a former CREI man. He went through the television course there and has recently constructed a TV set. He claims that he is kept plenty busy with record shows like the Tommy Dorsey show at the WRC studios where he is now part of the engineering staff.

John F. Stetson is the new man out at the WNBW TV Transmitter. He is back with NBC after being away for about five years. John is reported to have constructed the first TV set in Washington. It is a rotating disk type and can be seen at the Ford Museum in Dearborn, Mich.

Al Argentieri is another new ex-CREI man. Al is employed as a Group 11 man and came to work for WNBW last March. He is single and hails from Reading, Pa. In his spare time he can be found busy with his hobby "photography."

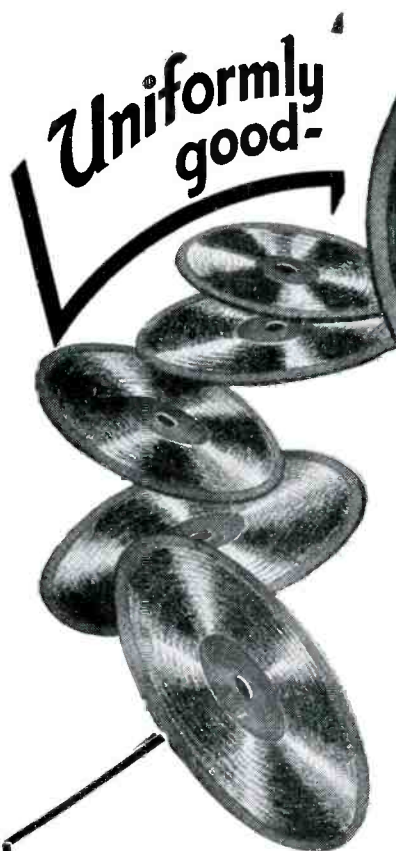
Gentry Stevens, new WNBW Xmit man, comes to us from RCA Insts. He gained his early operating experience at a radio station in Annapolis.

Joe Williams is a recent addition to the WRC engineering staff also. He is a faithful ham operator (W3KLO). He built his own rig and did a wonderful job of it. Joe used to work for AT&T. He hails from Norfolk, Va. and his greatest ambition is to master the art of operating the "bug" to the degree of "really" communicating on 40 meters.

The next man to tell you about is Arthur D. Semmig. Art used to be the chief engineer in the Library of Congress' recording division. Art is now at WRC spinning records. He is a Group 2, is married, has one small boy and hails from Bronxville, N. Y. "not to be confused with the Bronx"—unquote!

Congratulations to John Rogers for making Group 15 last April 1st. It was no April Fool's joke for Johnny—far from it.

The third try was the charm try for



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UTMOST IN  
HIGH FIDELITY  
REPRODUCTION**

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**WRITE FOR NEW DESCRIPTIVE BULLETIN**

## WASHINGTON—from Page 17

Joe Kriss on his attempts to get a loan with which to buy his new home. Practically no lending institutions are giving the GI 4% loans on new homes here in the Washington area any more. Joe had to go FHA. He did get the FHA 4 1/2% loan though and is now one of the home owners of WRC and is qualified to enter into discussions on how to raise dogs and cats, how to kill weeds, and the best methods on how to mix pain.

Television is here to stay according to Walter Godwin (W3ANJ) who recently purchased a console TV-FM-AM-PHONO combination set from General Electric. What won him over to the GE set was the focus control knob on the front of the cabinet and the reluctance pick-up head in the phono section—and of course the fact that he got it on a deal might have influenced him just a little too. "Two Chrysler" Fugazzi should be interested in this deal business.

Frank Gaskins of WNBW's Master-control is a new home owner (that is after 240 payments). He bought a nice looking two story home over in NE Washington.

Wally Ward has been relieved from duty at the Seven Tower (Lower Slob boria). Jim Butts was his rescuer. Wally reports that Cub Hill wasn't so bad, but Severn got kinda lonesome at times. He suggests that if you should happen to get the duty, and chances are you will if you are in the WNBW field group and hold a first class ticket, to take out a pet dog or parrot or even some gold fish for company.

Howard Gronberg and Don Cooper agreed some time ago to trade men in order to make Television and AM more flexible. This plan has been working out very desirably. Sherman Hildreth was the first AM man to go to television and I was the first TV man to take the training period at WRC. I wouldn't trade the experience for anything and feel that the time was well spent. The next two to be exchanged were Walter Godwin who went from WRC to TV and Frank Spain who went from TV to WRC for their month's familiarization period.

On April 26th this year, Professor Claghorn (formerly Senator Claghorn or known to his father and mother as Frank Spain) got up in front of the 19 men



**is the only union of broadcast engineers whose sole concern is the welfare of the broadcast engineer.**

gathered for the regular Monday night classes in equipment operation. The black board was upside down with a blank space that would have been on the bottom of a block diagram of the pulse shaper, now on top. Clag had a good sound purpose in mind and in the next two and one-half hours held the full attention of every man present. He started out by drawing (before turning the blackboard over) and explaining the operation of the Multivibrator ckts, the pulse mixer ckts, the clipper stages and the operation of the delay lines in the pulse former. Then having completed the ckt explanations he turned the blackboard around and did a wonderful job at explaining the block diagram of the shaper. Clag had less than three hours to prepare for the lecture. Joe Colledge usually conducts the classes, but could not attend this particular session. The information that Clag was to instruct the class that evening didn't reach him until three hours before the class was to commence.

Joe Colledge started the classes for the purpose of instructing the Group 10 students and the Group 11 technicians, but they gained so much popularity that men from other radio stations and higher group men attended the classes. As a matter of fact we were even honored by the presence of some of WNBW and WRC's announcers. Bigger classes will be held when the WNBW studios are completed.

The WRC softball team emerged victors from their first scheduled ball game of the season. WRC won over B'cst Magazine by a score of 29-15.

Bob Shenton is now active on 10 meters. (W3LFN). You aren't neglecting your model railroad hobby are you Bob? And how is that new G.E. TV set working?

Ed. McGinley (W4GFW) is active on 10 meters also. Ed, Bob, and three or four others are getting up their own party line on 29.2 mc (xtals readily available locally). Al Sears who already owns a 1 1/2 acre farm in Maryland now is the owner of a new Cape Cod out that way.

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**for new CONSOLE INSTALLATION**

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Write for Descriptive Bulletin



## NEW YORK REPORTS

Television seemed to be the big subject on the tongues of most of the ABC engineers this month. George Milne has been screening NABET applicants for the past month and the first newcomers reported on April 15th. On the same date, *Bom Mussell* and *Jack Stoody*, both ABC SE, were transferred to the newly formed television group. *Merle Worster* of field was scheduled to go over at the same time but due to previous commitments with VOX POP, he didn't start until May first. *Jack McNally* and *Frank Thielker* formerly NBC SE and more recently of Dumont TV were also hired. Welcome back fellows.

Join ABC Field and see the world! So say *Jack Bourcier* and *Merle Worster* and they should know after having visited Alaska and Puerto Rico in March and Paris and London in April. Purpose of said trips was to make tape recordings for VOX POP show. Tapes were flown back from these points and were used on the air four or five days after they were made. While in London Merle dropped in on one of his old 20 meter cronies and I had the pleasure of talking to him by amateur radio for about 45 minutes one night.

*Larry Williams* and *Gil McDonald* ABC SE, losing plenty of sleep shooting troubles in home made television receivers, being laughed at by *Ernie Barber MCD*, *Pete Narkon* ABC SE and *Ray Glendon* NBC SE all of whom have recently completed the same project. If *George Vose* NBC SE ever puts down that Bolex long enough, he is going to start in on a 630 TS also.

One of the neatest home made cameras we've ever seen was built up by *Gil* "Hey I just bought a new house" *Markle*. Starting out with an old post card size Kodak, Gil came up with a new combination that takes cut film or film packs and turns out 4 by 5 pictures that look like contact—I mean—35 mm. blown up—that is—Hey what am I saying?

*Bert O'Leary* spent part of his vacation down in Nassau in the Bahamas and the rest of the time developing a 2 meter beam antenna which when aimed north puts out a terrific signal to the west.

*New Faces*. We welcome the following newcomers as members of the New York Chapter of NABET.

*Rolf Drucker* joins the ABC Studio staff and comes over from WNYC in New York.

*Joseph Lewis* also a new studio engineer for ABC moves in from WHN.

*Fred Ripple* moves up stairs from NBC International Recording to ABC studio.

*John Bissom* lists CFRB of Toronto, Canada, as his last place of employment. Also worked for the CBC in Montreal. John joins ABC studio also.

Latest newcomer to ABC is *Stephen Temmer* who, like Drucker comes to us from New York City's own station, WNYC.

To page 20

## CAPPS\*

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CAPPS\* Patented Sapphire Styli (2187512) are the original and accepted standard for high class professional acetate recordings.

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# ROCHESTER

At WHAM, the place is all littered up with new equipment. Added to the grand opening of Radio City, with its complete new studio, control, and office facilities, are the new AM transmitter and tower and the new FM transmitter, the latter now set up for testing without benefit of antenna. The AM tower is veddy impressive—450 feet high, constant cross-section, with four guys (not men, stoopid!) attached to the approximate center. The wires end in concrete anchors that rather give a warlike atmosphere to the place, as they look like pillboxes with a small garden-size concrete “cannon” on top. The location is fine for radio and the Supervisor, one A. W. Balling, seems greatly satisfied with the microvolts per meter at spots hither and yon, however, the wild life thereabouts is slightly terrific, according to Alex Gresens. He claims that an early mosquito flew absentmindedly into the building leaving a considerable dent in the concrete and making a heavy chore for the three men who got him into a wheelbarrow amid many grunts and groans and finally interred him at a suitable distance from the building.

Hank Boyce, whose real estate venture was reported in the last issue, is busily making his 99 year old camp into something more livable. When complete, do you suppose it will be called a “Boyce Camp”? Leave us hope not! Ed Stiles, the retired electrical contractor, is reportedly very chipper at being relieved of the cares of businesshood; he’ll even smile now, with very small provocation. Charlie Long and Mike Greco are sharing standby duties at the old transmitter now, and a lonesome job it is. They count their on-air time in seconds instead of hours, which is as it should be, the old one being temporarily a spare for the new transmitter, but still is not conducive to an exciting life.

Radio City (the Rochester variety), notwithstanding the February 13th opening, still has many bugs (radio) in it which must be gradually (OH so gradually!) eliminated, frinstance; it is necessary to be very careful wriggling the nose or the slight jar will send the pickup thirty grooves back toward the start. This sort of thing can be very embarrassing—ask Al Barrons! The program department has had another attack of trying to compress forty seconds worth of station break and spot announcements into the allowed thirty secs, which, as anyone (else) can plainly see, can’t be did. Bum Holly, who had a six months session with the pretty nurses a while ago is back in the hospital again, this time with kiddely trouble. As if this weren’t enough, hives were also added to his discomfort. He and Job! Freddy Ambrose are starting the production line again, his third progenitor being due a few months from now. Charlie Snyder, besides becoming a fisherman, is taking up weaving. Well, actually it’s his wife but he has to learn the language and some skill, so they’ll be still compatible. Due to the high water in Lake Ontario, reportedly even higher than the exceptional level of last year, Al Barrons is again beating his breast and tearing his hair for

fear that his cottage will be soon found some miles up the lakeshore. Elmer Grabb is busily installing one of those surplus jobs in his car so he can take W2DOD bye bye. He says that the guys (MEN, stooped!) in Denver are working the east coast on portable rigs. How’s it done, fellers?

The WHFM’ers have been sweating their ahems off installing the new 10Kw FM rig. Unfortunately, the new site is not yet ready so the thing squirts into but a dummy antenna. However, the thing begins to look at least familiar to the Thinkers Three and by the time it is actually AT HOME they’ll be able to run it right. The final is called locally the “Estey,” on account of its uncanny resemblance to a pipe organ. There’s more darn gadgets on that thing, all for the benefit of the wage slaves who will run it so they can twist a condenser at the back while reclining in front. That makes a total of three transmitters at the FM aerie now. That should be enough for one man to handle, one would think.

By the way, Earl Zimmer has made himself into a man of some mystery by transferring to WHAM xmttr from that of WRNY. Since Earl left WHAM to go to WRNY (he’d been hired on a temporary basis), this befuddled reporter would like to know if Earl is now an oldtimer or a new man at WHAM?

The story from WHEC at the present writing is one headlined for the most part by wedding bells. Miss Cleary will recite in the “I do” department on June 12th, and Jerry Vogt, their staff organist, will pledge the same to a nurse from Chicago on June 19th. Next in order of definite dates will be Walter Lynch, of Control Room fame, on June 26th, and Walter, like Jerry, will join with a nurse—a nurse from Elmira, New York. Yes, the nurses seem to have it this season, because Wilson, also of CR fame and Ye Ed, will stand before a parson with the nurse of his choice who hails from Cincinnati. Wilson’s date is May 15th in the latter city. Now; the question is—are nurses attractive to Engineers or are Engineers attractive to nurses? Sherwood, of the transmitter, married a nurse some years back, and so did Williams, of the CR. This makes, or will make after Lynch and Wilson do their stuff, four nurses as wives of WHEC Engineers! If they don’t stay healthy from now on, it won’t be for lack of professional care.

At this time summer plans are in the offing for most of us, and after we get into that routine, and after wedding trips have been made, perhaps Ye Ed will be able to give out with news of a more technical nature and of more interest to benedicts of long standing. And 73.

—G. W. Wilson—WHEC-CR

—D. H. Anderson—WHFM.

## NEW YORK—from Page 19

Rod Dorsey who worked for ABC during the war years turns up again, this time in NBC studio.

Completing the list for NBC we have Jack Braverman another alumnus of WNYC.

## TRADE NEWS—from Page 15

The IRE West Coast Convention (Sept. 30 to Oct. 2) will have as its banquet speaker, Dr. Robert A. Millikan, world renowned physicist; he will talk on “The Release and Utilization of Atomic Energy.”

A warning to the nation, “in its present

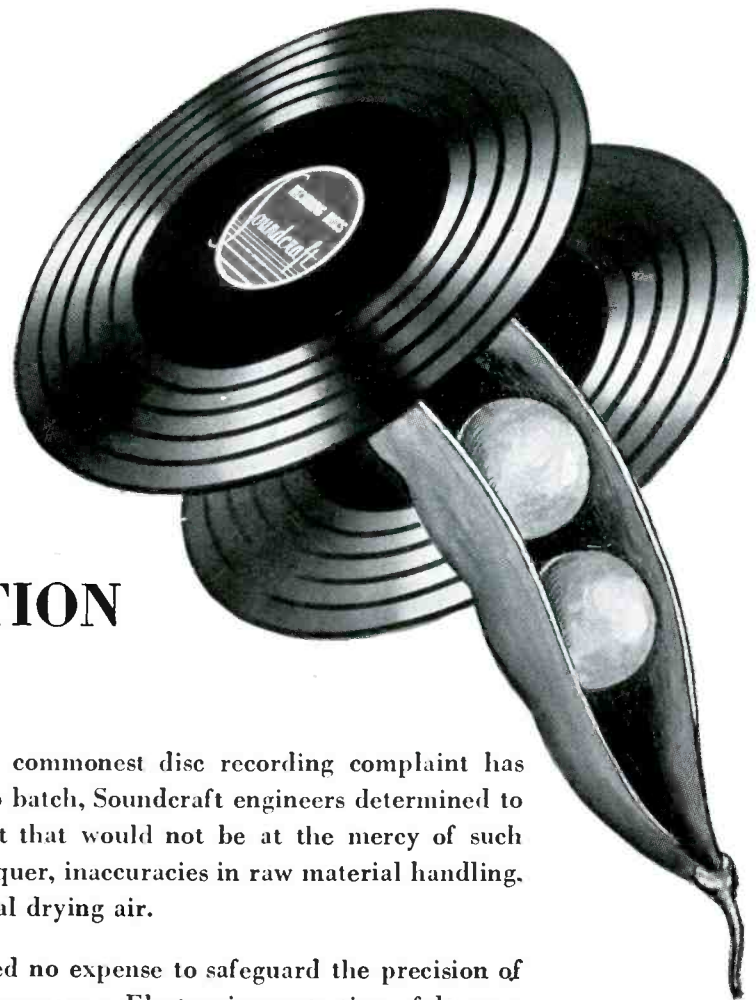
crisis” not to repeat the error of placing scientists and technicians in uniform, was urged April 5th by President Houston of Rensselaer Polytechnic Institute in an address before an alumni dinner.

Cannon Electric Dev. Co. has made available utility colored pilot lights, designed for signal applications, warning,

decoration, and general illumination. The lenses come in five colors of unbreakable plastic. Special Bulletin No. UPL-1 will be mailed upon request.

Index, Volume II(b)(1947) RCA Technical Papers is available free from the RCA Review, RCA Labs Division, Princeton, N. J.

WHAT  
MAKES A GOOD  
RECORDING BLANK\*  
GOOD?  
?



## STANDARDIZATION CONTROLS

Aware from the outset that the commonest disc recording complaint has always been variations from batch to batch, Soundcraft engineers determined to build disc manufacturing equipment that would not be at the mercy of such conventional ills as impurities in lacquer, inaccuracies in raw material handling, and inadequate control of the critical drying air.

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*\*Watch this space for succeeding ads in this informative series on how Soundcraft discs are made.*

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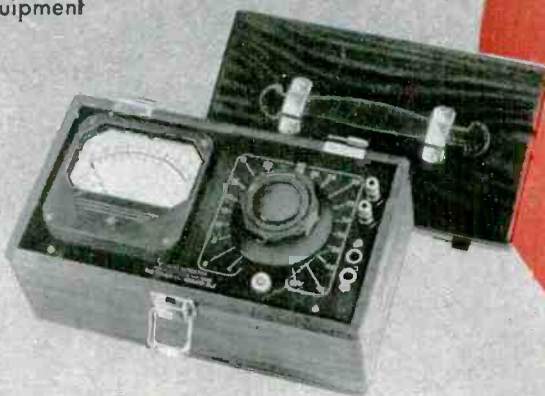
### TYPE 920

Rack model, low-level bridging type. Meter multiplier range: -20 VU to +20 VU. Power supply, 100-130 V, 60 cycle AC, with voltage regulator for normal variations. Reference level: 1 mW into 600 ohms.



### TYPE 911

Portable model, bridging type. Meter multiplier range: +4 VU to +42 VU or +4 VU to +26 VU, 12 VU steps. Reference level: 1mW into 600 ohms.



### TYPE 910

Rack model, same as Type 911.

### TYPE 915

Rack model, terminating and bridging type. Meter multiplier ranges: terminating, -6 VU to +32 VU; bridging, +4 VU to +42 VU; or terminating, -6 VU to +16 VU; bridging, +4 VU to +26 VU, 2 VU steps. Reference level: 1 mW into 600 ohms.



### TYPE 185

Power Level indicator, portable or rack models, bridging type. Meter multiplier range: -10 db to +46 db. Reference level: 6 mW into 500 ohms.

### GENERAL SPECIFICATIONS

**INPUT IMPEDANCE:** Bridging, 7500 ohms; terminating, 600 ohms, excepting Type 185—1581 ohms, bridging.

**FREQUENCY RANGE:** Less than 0.2 db up to 10,000 c.p.s. Type 920, less than 0.2 db, 30 up to 15,000 c.p.s.

**METER SCALE:** -20 to +3 VU and 0 to 100%. Type A scale has VU reading on upper scale; Type B scale has percentage reading on upper scale.

**INDICATING METER:** Copper-Oxide type, adjusted for deliberate pointer action.

**METER ADJUSTMENT CONTROL:** Miniature step type;  $\pm 0.5$  db range, in 0.1 db steps.

**MOUNTING:** Rack models 19" long for standard relay rack; portable models in walnut cabinet, approx. 11"x6"x6 1/4".

THE **DAVEN** COMPANY  
191 CENTRAL AVENUE  
NEWARK 4, NEW JERSEY

When ordering Speech Input Equipment—  
SPECIFY DAVEN