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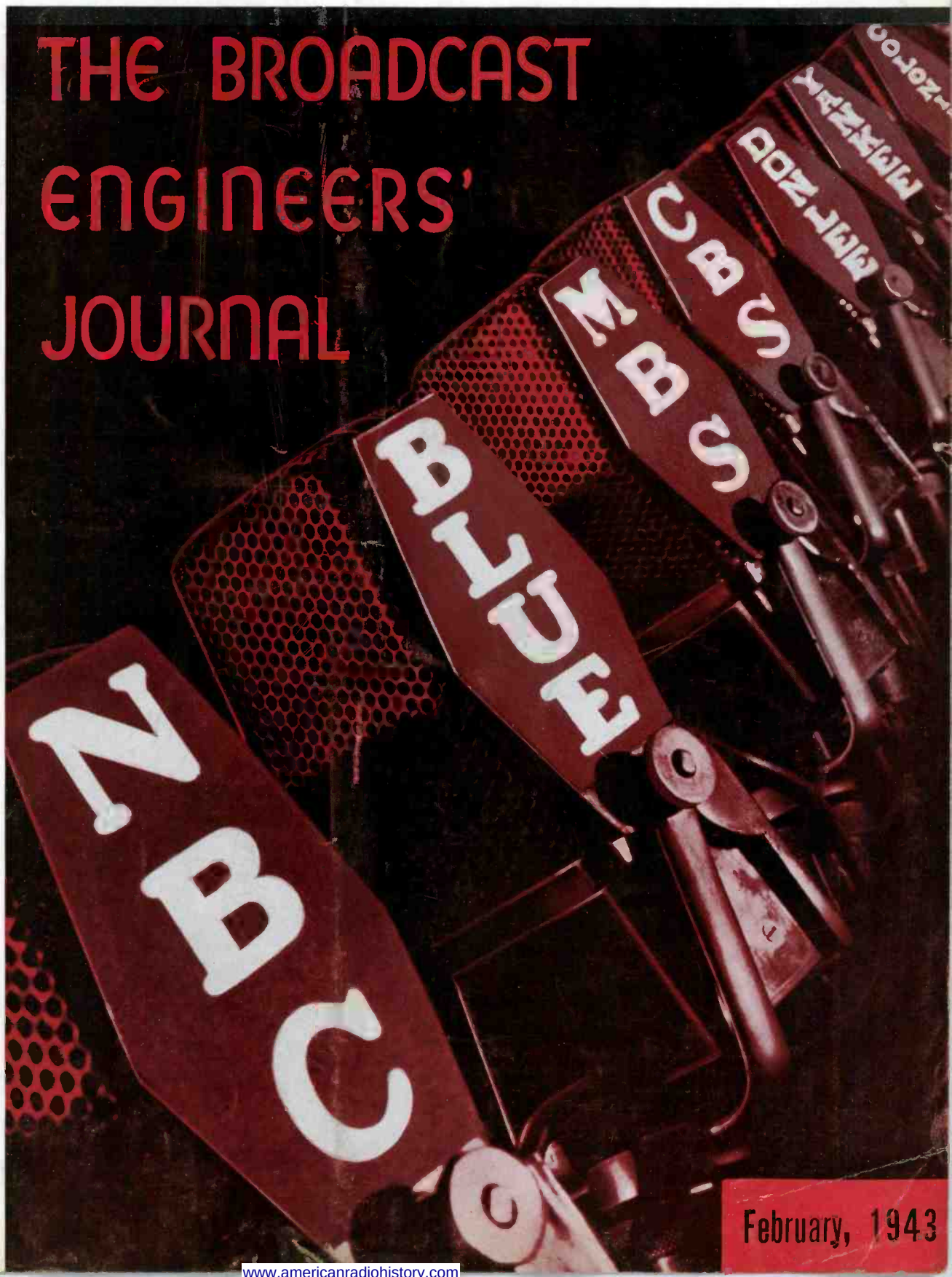
THE BROADCAST ENGINEERS' JOURNAL

OWI's Place in American Broadcasting



February, 1943

Wheezes, Wows, Squeaks, Noises,
are out because there are

NO GREMLINS

in GOULD-MOODY'S sensational "Black Seal" GLASS BASE *Instantaneous* RECORDING BLANKS

Gremlins are those pesky little pixies who annoy pilots of the RAF and the U. S. Air Force. They're also present in many recording blanks, causing wows and rumbles, squeaks and noises. But, there are no Gremlins in "Black Seal" Glass Base Instantaneous Recording Blanks. They're the talk of the industry... giving a wide frequency range, true and beautiful reproductive qualities, and absolute freedom from noises—you hear only the performance itself! Try these Gremlin-free "Black Seal" blanks at our expense—if they don't come up to your expectations, send them back and we'll stand the entire tariff.

Old Aluminum Blanks Recoated with the "Black Seal" Formula in 24 fast hours.

Ship and Protect your Records with the new Gould-Moody PacKARTON light-weight, corrugated container. Saves time, saves records and reduces shipping costs.*

IMMEDIATE DELIVERY! Styli and shipping cartons supplied at cost.

*REG. U.S. PAT. OFF.

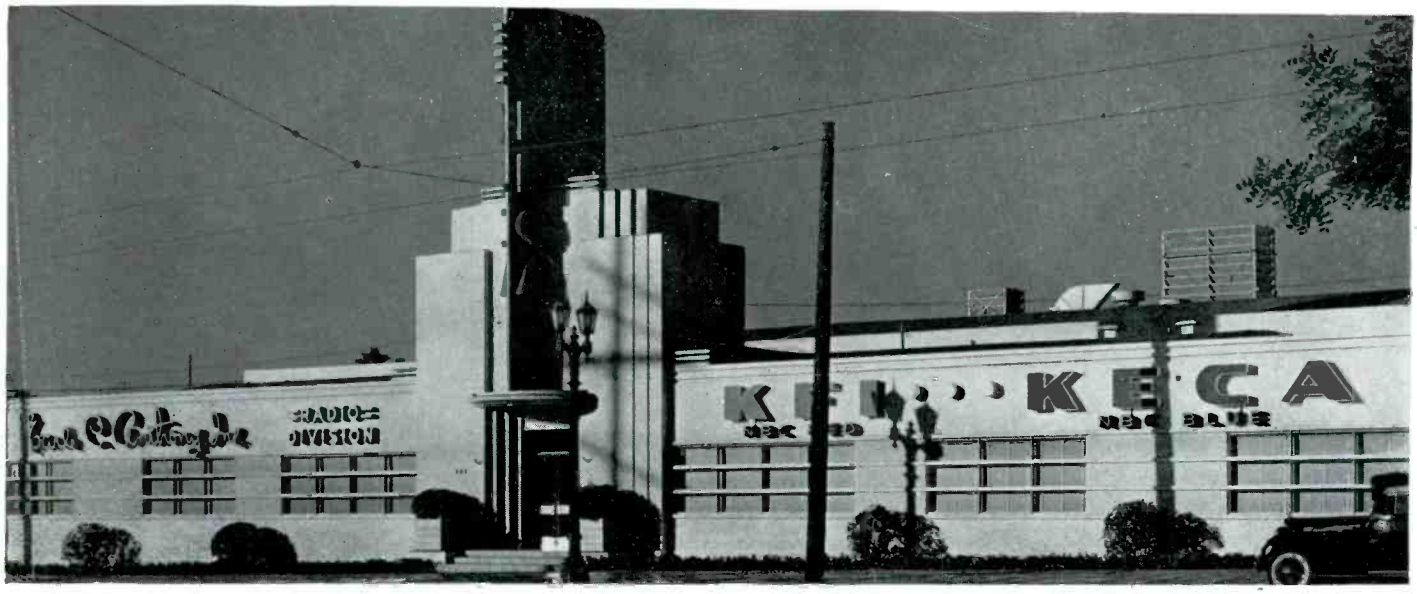
THERE ARE HUMAN GREMLINS, TOO!

They're well-meaning, but kind of careless, people who buy things they don't need, who spread rumors, who throw away scrap and rags, who waste fuel, who drive their cars too fast, who aim to but don't invest in War Bonds.

Help win the war, help spread the word

—DON'T BE A GREMLIN!

the **GOULD-MOODY** *company*
RECORDING BLANK DIVISION
395 BROADWAY NEW YORK, N. Y.



Los Angeles News

By H. M. McDonald

THE U. S. Army Signal Corps (Emergency Procurement Section, Philadelphia) is in urgent need of and will buy from private owners: 4x5 Speed Graphics, 16 mm sound projectors and cameras, 35 mm cameras, portable sound projectors and exposure meters.

We add the name of Studio Engr. John Sutcliffe to the list of landed gentry at KFI-KECA. John owns five acres of 16-year-old Valencias, a comfortable house, and a family orchard of apples, figs, peaches, crabapples, grapefruit, and walnuts, in San Fernando Valley, near the Mission, only fifteen miles from Hollywood. Come what may he'll always have a plentiful supply of fruit juice and sunshine.

Many of the best men in the Engineering Department of KNX (CBS) Hollywood have gone into the Navy. It's difficult to keep track of them but when we last heard their ranks and locations were: Alden Packard, Lt. Comdr., and Warren Birkenhead, Lt., at Quonset Point, R. I.; Harold Peery and Allen Cormack, Lieuts., in training at Phoenix; Milford Noe, Lt. jg., at Harvard U, and Charles Douglas, Lt. jg., at M.I.T., Boston; Leo Shepard (W6LS) Warrant Officer at North Island (San Diego); Lawrence Weston, Warrant Officer on a Carrier in the Atlantic. Three other KNX Engineers, Russell Stanton, Jerry Beranek and Charles Johnson, are doing research work at M.I.T. Herb Pangborn is now Transmitter Supervisor at KNX.

After listening all day to the trials and tribulations of Stella Dallas, Young Widder Brown, Portia Blake, Just Plain Bill, et al., Engr. Ernie Wilmshurst emerges from KFI-KECA studios to find a flat tire on his car; changes to spare but pressure very low; eases car around a U turn to service station, half block away, but cop sees the U and gives him ticket; runs out of gas on way home. "What happens to me shouldn't happen to a dog", he moans.

Leroy Bremmer, former secretary of Los Angeles-Hollywood Chapter of the Veteran Wireless Operator's Ass'n., in town again, after his fifth trip to the South Seas on a President boat. Says seventeen operators man the radio equipment on the ship AND THEY DON'T PLAY SHUFFLE-BOARD. Has been through both air and sub attacks.

L. A. newspaper item: There has been so little litigation on labor questions in Los Angeles during the last few months that Judge Wilson ordered the Labor Relations Court discontinued. The special labor court was established in April, 1941.

Clarence Seamans, KFI-KECA Master Control Supervisor, out shopping for a large old-fashioned clothes basket. No, not another addition to the family, but demands from the laundress for better transport facilities from the laundry to the lines in the yard. His linen refresher is becoming so independent he might have to stay home Mondays to trundle the basket back and forth on the tea wagon.

Ten years ago today, March 2, 1933: The "Three-Day Banking Holiday". Some are still on it.

Leslie G. Hewitt, former Chief Engineer of Warner Bros. station KFWB in Hollywood, is now Chief of the Pacific Network Division of OWI's Communications Facilities Bureau, with headquarters in San Francisco.

Carroll R. Hauser, former Chief Engineer of KMTR, Hollywood, is now Chief of the Bronze Network Division of OWI's Communications Facilities Bureau with headquarters in New York.

Col. E. S. Gorrell, testifying before a House committee, asserted that future air travel will follow shorter north-south routes instead of the traditional east-west travel and cited the possibility that Japan might attempt to attack the Panama Canal from the north—coming down from the Aleutians through DENVER and Yucatan. (Limber up your A A guns KOA).

AND BUY BONDS.

Pygmalion was no dope!

Discouraged by the women he met, Pygmalion created his ideal out of marble and fell in love with it. On a feast day in honor of Venus, he prayed that he would find a wife as lovely as his statue. Upon his return, he discovered that his wish had been granted — the statue had come to life.

Like Pygmalion, **ADVANCE** engineers have created an ideal in **Glass Base Instantaneous Recording Blanks** . . . . to reproduce sound in all its "lifelike" qualities.

Advance Recording Products Co.

36-12 34th Street STillwell 4-7837 **Long Island City, N. Y.**

Radio Broadcasting Declared Essential

Occupational Bulletin 27 (Amended Jan. 23, 1943) Effective: Immediately — Subject: Communication Services Activity

1. The War Manpower Commission has certified that communication services is an activity essential to the support of the war effort.

2. This bulletin covers the following essential activities which are considered as included within the list attached to Local Board Release No. 115, as amended:

(a) Communication services: Magazines of general circulation which are devoted primarily to the dissemination of public information; newspapers and news syndicates; production of motion pictures (including technical and vocational training films for the Army, Navy, and war production industries); protective signal systems which supplement fire and police protection to military, public and private industrial and commercial establishments; *radio broadcasting*; radio communications (radio-telephone and radiotelegraph); submarine cable; telegraph; telephone; television.

3. The attached list of occupations in communication services are occupations requiring a reasonable degree of training, qualification, or skill to perform the duties involved. It is the purpose of this list to set forth the important occupations in communication services which must be filled by persons capable of performing the duties involved, in order that the activity may be maintained efficiently. There are listed separately the occupations within seven separate branches of communication services activity. The list is restricted to occupations requiring six months or more of training and preparation.

4. In classifying registrants employed in these activities, consideration should be given to the following:

(a) The training, qualification, or skill required for the proper discharge of the duties involved in his occupation;

(b) The training, qualification, or skill of the registrant to engage in his occupation; and

(c) The availability of persons with his qualifications or skill, or who can be trained to his qualifications, to replace the registrant and the time in which such replacement can be made. (sgd) LEWIS B. HERSHEY, Director.

Critical Occupations

Communication Services Activity

1. Magazines of general circulation.
2. Production of Motion Pictures.
3. Protective Signal Systems.
*4. *Radio Broadcasting*; Radio Communications; and Television Services.
5. Submarine Cable Services.
6. Telegraph Services.
7. Telephone Services.

* * *

4.

Radio Broadcasting; Radio Communications (Radiotelephone and Radiotelegraph); and Television Services.

Director of Operations, Radio Broadcasting (Domestic or International). (This title includes those persons who are in charge directly, or through subordinates, of the activities of the various operating departments of a network. It also includes assistants who are directly responsible to the director of operations for the efficient functioning of the various operating departments of a network. It does not include any directors or assistants concerned with sales, promotional, legal, tax, clerical and other non-operating aspects of a network.)

Dispatcher, Radio Communications.

Electrician (All Around).

Engineer, Professional or Technical. (This title covers persons who are actually engaged as engineers in the operating or research phases of this activity regardless of educational background.)

Engineering Draftsman, Design.

Foreman Radio Communications (Installation and Repair).

Inspector, Radio Communications Equipment.

Installer, Radio Communications Equipment.

Instructor, Training Program (Radio Communications). (This title covers only those persons engaged in the occupations included in this list who, because of their skill and experience, are detailed as instructors in an established training program.)

Instrument Maker (All Around).

Machinist (All Around).

Maintenance Mechanic (Domestic or International Broadcasting, and Radio Communications).

Manager, Employment or Personnel.

Manager or Superintendent, Radio Communications System or Station. (This title covers those persons who are actively engaged in supervising directly, or through subordinates, various technical and operating departments of a system or station in the radio communications industry. This title covers, also, assistants who are directly responsible to such managers for the efficient functioning of the various technical and operating departments. It does not cover managers or their assistants concerned with promotional, sales, legal, clerical, tax, rate structure, or other segments of a non-operating character.)

Managing Editor, News, Special Events or Public Affairs (Domestic or International Broadcasting).

Mechanician, Radio Communication Equipment.

News Editor (Domestic or International Broadcasting).

News Editor-Announcer (International Broadcasting).

Plant Maintenance and Operations Supervisor (Radio Communications).

Program Director (Domestic or International Broadcasting).

Radio Broadcast Technician (All Around) (Domestic or International Broadcasting).

Radio Communications Technician (All Around).

Radio Telegrapher (This title covers radiotelegrapher of both stationary and mobile radio services).

Radiophoto Operator.

Rigger Radio (Radio Communications and International Broadcasting).

Station Manager (Domestic or International Broadcasting).

Television Engineer.

Traffic Manager (Domestic or International Broadcasting).

Storekeeper, Chief (Radio Communications).

Traffic Supervisor (Radio Communications).

Translator (International Broadcasting, Shortwave Monitoring Services, or radio communications).

*The list of occupation of all services except "4" have been omitted in this Supplement.

OWI's Place in American Broadcasting and Its Contribution to the Prosecution of the War

(We are indebted to the Office of War Information for this authoritative paper on the purpose and effectiveness of American short-wave broadcasts directed to the Axis and Axis-subjugated peoples of the world.—Ed. S.)

FROM a nation with no international voice on the airways of the world, American radio engineers in the space of little more than a year have transformed the short wave broadcasting facilities of the nation into one of the most powerful psychological adjuncts to the work of United States fighting men.

Around the world, in from thirty to forty languages and dialects on a twenty-four hour a day basis, fourteen short wave transmitters today tell over and over again the story of what America is doing or getting ready to do in the march to victory.

The Voice of America, confident and reassuring, outlines to the starved peoples of the occupied countries the story of American production to make them realize that the United States is going to win; to our allies and the neutral nations it gives solid facts and figures on Lend-Lease and Manpower and a score of other subjects; as a morale builder it supplies home town gossip, entertainment and baseball scores to our soldiers and sailors scattered from Iceland to the Solomons; it tells the enemy with monotonous and telling regularity, every hour of the day, that its number is up.

Already the Voice of America is a clarion call. But it will be more than doubled in potency during 1943. An additional 22 transmitters are to be added to the battery now operating as soon as they can be constructed, boosting the total number to 36 transmitters of from 50 to 100 kilowatts.

The first of these is expected to be in operation early in March and the last will be in use before the close of the year. Twelve of the new transmitters are to be located in stations on the east coast and ten will be on the west coast, the exact locations being dependent on the availability of experienced operating personnel, building and power supplies, and of existing antenna arrays or land on which new arrays can be erected.

The matter of existing antenna is important. While government engineers recognize that the curtain type antenna, properly designed and constructed, is most effective for long range short wave transmission, scarcity of materials needed for its construction make it desirable for the period of the war to use the rhombic type of antenna. This type requires no more wire and contains only a fraction of the number of insulators needed for the curtain type. Then, too, ordinary telephone poles can be used for the rhombic antenna, while high towers are required for the support of the other. In addition, the rhombic antenna have an advantage in that they are useful over a wider range of frequencies without special adjustment, a desirable feature when it is necessary to change frequencies in order to overcome interference.

In order to provide programs for the additional transmitters, an expansion of OWI short wave studio facilities at New York is under way. When completed there will be a total of 15 studios of modern construction and a modern control room, supplemented by recording facilities and the other regular equipment found in large studio operations. At San Francisco nine new studios are being provided.

Their completion will mark a milestone in short wave radio transmission in the United States. It will write finis to a veritable host of radio problems that had to be solved before the Voice of America was born. To understand just how difficult those labor pains were, it is necessary to go back to just before Pearl Harbor.

The United States short wave broadcasting system just prior to and during the early stages of the war was operated on a competitive basis. Each licensee operated in accord with his own concept of the effects of his broadcasts upon foreign peoples and in accordance with the amount of money he wished to spend.

There was no such thing as a national coordinated psychological warfare objective. Licensed broadcasters competed with one another to produce service, although there was no monetary profit in the doing. Actually in many instances short wave broadcasting was an experimental adjunct to domestic radio service and was operated without governmental restraint as to programs.

Immediately after the attack on Pearl Harbor, our government realized that the effect of sustained propaganda from Germany was not without significance insofar as it influenced the people of subjugated countries and the attitude of neutrals, as well as some of the belligerents.

Therefore, during the summer of 1942, some time after the information agencies of the government had been reorganized into what are now known as the Office of War Information, headed by Elmer Davis, and the Co-ordinator of Inter-American Affairs, headed by Nelson Rockefeller, the government realized that our short wave broadcast facilities were totally inadequate to meet the requirements of psychological warfare.

There were in the United States in the early summer of 1942 only 14 transmitters suitable for short wave broadcasting, two or three of which operated with powers of less than 50 kw. This was in marked contrast to the Axis powers which had more than 100 transmitters, 68 of them in Germany alone. This number Germany intended to increase by 20 additional transmitters of 200 kw power each, according to information reaching this country.

The United States Government had assigned to its short wave service only 47 radio frequency channels, eight of which were above 20,000 kc and not now useful because of present-day ionisphere conditions.

Program service requirements indicated it would be necessary to render a broadcast service nearly 24 hours daily to all parts of the world. This program service would have to be designed to reach the listeners in foreign countries during the hours in which it is most probable they would attempt to receive such programs. In this connection it was believed essential that arrangements be made wherever possible to rebroadcast our programs on standard broadcast transmitters in the countries of destination. (Continued on Page Eight)

Jim Summers, San Francisco Supervisor, Drafted by Stork!

By F. L. Barron

THURSDAY afternoon, January 14, 1943, in the N.B.C. conference room of the San Francisco building was the time and scene of a most unique ceremony which even one of the local news publications saw fit to acknowledge as probably starting a precedent along these lines. It was an "all male stork shower", rendered in the honor of "Smiling" Jim Summers, Control Room Supervisor, and one of the senior members of the staff in the point of service.

For many a year it was the accepted fact that "Jim" was destined to remain a batchelor throughout his entire life, but the inevitable finally happened and Jim found the one and only. He was speeded on his matrimonial journey by many of the members of the staff and he was accepted among the ranks of the benedicts, indulging in the many trivial discussions of domestic life and its perplexities.

With the passing of time Jim's countenance began to take on a more serious and benevolent attitude with surruptitious remarks and requests for information dropped here and there. It was not difficult for the more experienced members of the married ranks to surmise what might be in the offing. Yet Jim guarded his secret in a manner which he thought was in the accepted military traditions.

Verifying their speculations through competent and indirect channels the boys thought they would prove to Jim that his "secret" was shared generally throughout the staff and that secrecy was no longer necessary and he could freely indulge in the joyful discussion of the impending event with all of the abandon of any prospective father. Preparations were hurriedly and "secretly" made for the shower, which eventually turned into a veritable "deluge" and almost proved to be a fatal shock to "JIM".

SURPRISE!

All of the donations to the future Radio Engineer, both sexes being in the profession now, were assembled in the conference room and Mr. John Elwood, General Manager of KPO working marvelously with the proposed scheme, sent in a hurried call for Jim Summers to come to his office on vital business. Agitated by the thought of what the call might represent, Mr. Elwood engineered an unsuspected transfer of the discussion from his office through the door leading into the conference room where all preparations had been made to register forever the moment of intense surprise upon Jim's face as he found out the real reason for the official visit. The donations had been set up almost in his path, and with the press department camera focused on

(Continued on Page Eleven)

In the group photo below, are: **Standing,** l. to r.—"Senator Tommy Watson; N.A.B.E.T. Chapter Chairman Cliff Rothery; Edgar Parkhurst, Maintenance; Robert Shover, S.E.; Beverly Palmer, Engineering Manager, KGO; E. E. Jefferson, CR Supvr.; Hal Wolf, Annor., N.B.C.; Mr. John Elwood, Manager, KPO; Bill Roddy, Annor., N.B.C.; Guest of Honor "JIM SUMMERS"; S. A. Melnicoe, S.E.; Oscar A. Berg, Maintenance Supvr.; George Greeves, Engr.-in-charge, KPO; Hal Ashby, S.E.; Marius Thistead, Air Conditioning Engr.; Clark Sanders, S.E.; H. Puchetti, S.E. **Seated,** l. to r.—Russell Butler, S.E.; Francis Oliveer, S.E.; George McElwain, Field Supvr.; Eddie King, Annor., N.B.C.; George Dewing, S.E.; G. W. Andresen, S.E.; F. L. Barron, S.E.; and on the floor as usual is Don Martin in charge of the S.F. news room.

The O.W.I.

(Continued from Page Six)

In the subjugated nations, programs had to conform to clandestine listening habits, about which secret information had been received. The government knew that listeners in foreign countries utilized both short wave broadcast schedules, as well as the long wave broadcast programs from the nearest United Nations country. It seemed necessary, therefore, to organize for both short wave reception as well as reception from long wave stations rebroadcasting the Voice of America from nearby United Nations territory.

There were seven short wave broadcast licensee organizations in this country, several of which were in competition with one another. There was duplication of effort. The government found that only a part of the total program requirements could be met if each of the competitors undertook to do the entire task. Furthermore there were not enough available radio channels to provide each of the competitors with the necessary facilities to do an efficient job as a whole.

It was asecrtained that service on a single frequency basis was unreliable, and that if continuity of service at any particular hour and at a specified distance was to be achieved, it was necessary to send the same program on two similar frequencies. This would facilitate diversity reception, which, of course, is tremendously useful in rebroadcasting, and helps eliminate so much of the minute-to-minute fading and distortion usually experienced in single frequency transmission and reception. Dual frequency transmission also enables an individual with an ordinary short wave receiver to secure better service than with a single frequency transmission system.

Engineers estimate that the dual frequency system is approximately six times more effective than the single frequency system. Hitherto United States broadcasting was based primarily on the single frequency system, and it seemed obvious that a change should be made.

The most significant technical defect in short wave broadcasting organization during the summer of 1942 was that each individual licensee had only a few frequencies. The chances were that any particular licensee would be unable to transmit a program effectively to more than a very few countries in the world. This was because the radio frequency propagation characteristics of the channels for which a station was licensed were not in all cases suitable for all the distances to be covered by the station's transmissions. It therefore seemed obvious that a plan should be established in which the frequencies for short wave broadcasting would be used more effectively for the service to be rendered.

Another factor which influenced any step taken to reorganize short wave broadcasting operations was the shortage of critical materials, the shortage of manpower and the necessity for giving priority to the manufacture of military radio equipment. Even though short wave broadcasting in psychological warfare is considered second in importance to military and naval communications, a serious question arises when diverting factories from producing military radio equipment.

Some radical step had to be taken if short wave broadcasting facilities were to compare in any way at all with the efficient German system. Under the conditions, it seemed impractical to engineers to attempt to provide a short wave broadcasting system in which the number of transmitters would equal those of Germany. It seemed essential that the government must rely on a plan which coordinated the use of frequencies, equipment and program resources in the most scientific and practical manner.

It was decided that basic requirements could be met if the United States utilized 36 short wave transmitters, each having power in excess of 50 kw. A total of 64 high frequencies was considered all that was necessary from a scientific standpoint, provided there was coordination of the individual transmitter units into an integrated whole wherein each unit assumed an effective share of the program service requirements.

In making this decision government officials realized that, as the Chairman of the F.C.C. stated recently:

> "More than adequate physical facilities, however, are needed for effective psychological warfare. This is a total war, in which the propaganda front must be thoroughly tied in with the economic and battle fronts. Diffusion of responsibility for programs was really confusion. Effective as individual programs by the several private licensees were, there was need for over-all coordination of programming, for directing the right program to the right place at the right hour. In short, there had to be singleness of purpose, singleness of direction, to do an effective job."

It was realized by the government that the cost of constructing, maintaining and operating such a short wave broadcasting system would run into millions of dollars.

Time was short and immediate decisions on how to accomplish the objective was necessary. Three courses of action seemed to be open to the authorities. These were government ownership and operation, private ownership and operation, or cooperation between government and private enterprise.

Proponents for each of these courses argued their respective beliefs and all were considered. The exponents of private ownership espoused the cause of freedom of the radio. Their view is expounded in the following excerpt from one of their proposals:

"The licensees of international short wave broadcasting facilities in the United States recognize that war-time conditions create vast new opportunities and impose entirely new obligations on short wave broadcasting, as such, to foreign countries.

"As a major psychological weapon for winning the war, short wave broadcasting from the United States must be thought of in new dimensions both as to physical facilities for the emanation of programs and as to resources for building these programs.

"Both before and since December seventh the broadcasters have individually and voluntarily expanded and re-expanded their operations in response to the challenge which world conditions have presented. Hours of operation have increased, new transmitters have been completed and put into service, new beams have been brought into use, and the creative and production staffs of the broadcasters have been in many instances doubled and tripled.

"In planning and creating programs the broadcasters have worked constantly in close collaboration with the State Department, the Office of the Coordinator of Inter-American Affairs, and other government agencies interested in the dissemination of information to foreign countries.

"There is abundant evidence that the free and competitive system of American broadcasting has won for our international programs a kind of respect and prestige among foreign listeners which no other international broadcasts have achieved. It is common knowledge that American news broadcasts in foreign languages, which form a substantial

part of all short wave schedules, are accepted and believed by foreign listeners because they are not 'government broadcasts' and are not, therefore, suspect as being biased and distorted.

"It is accordingly the broadcasters' firm belief that, while greatly expanded operations are clearly necessary, such expansion should be achieved without the destruction of the outstanding advantages of the present American system of broadcasting.

"Recognizing the need for intensified and amplified activities in this field, the Government has offered to augment the resources of the present individual licensees by providing them with government funds. This offer was introduced in a plan which embraced such suggestions as the purchase of time by a government agency, the leasing of facilities by a government agency, and the control of some or all programs by a government agency.

"The broadcasters have given careful consideration to this plan and feel that it would seriously jeopardize the validity and effectiveness of our short wave efforts. Even though only some programs were involved, the moment the Government of the United States, through any of its agencies, assumed control of the material contained within an international short wave program, one of our greatest assets of international confidence and good will would be undermined. It would cause this country, in whole or in part, to be exporting the ideas of democracy and the news of the world through a totalitarian instrument. Such an inconsistency would be only too obvious, and, therefore, damaging to the very ideas which we, in all our efforts, are trying so hard to keep alive throughout the world.

". . . We believe, however, that there is no disagreement between the broadcasters and the Government on the real ends to be attained. The broadcasters have therefore evolved a proposal which they believe achieves these ends without forfeiting the esteem which American broadcasts have won among foreign listeners, and without sacrificing the democratic principles of competitive broadcasting by independent licensees."

The specific proposal to carry out the doctrine quoted suggested the formation of two nonprofit corporations to operate competitively the short wave broadcasting stations. The stations were to be divided equally between the two corporations. The existing licensees were to lease their present stations to the corporations for $1.00 a year. The

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The O.W.I.

(Continued from Page Nine)

Government was to bear the expense of operation and new construction, with the exception of the actual cost of operating the existing transmitter, which cost was to be borne by the present licensees. The management of the corporations would cooperate with the Government, but responsibility for all programming would remain with the management.

In this connection, Commissioner T. A. M. Craven of the Federal Communications Commission has pointed out:

"Strangely, after seemingly arguing so idealistically for freedom from Government subsidy, these exponents of private operation actually proposed just the opposite. I could understand how the broadcasters could ill afford to donate the many millions to defray the cost of such a huge operation. But to me, this proposal seemed to be that the Government would "foot" the main portion of the bill and have no real voice in the conduct of psychological warfare.

"I felt that the licensees underestimated the realities of the situation both as to time and as to the responsibility for the successful conduct of psychological warfare. The licensees' plan likewise seemed defective from the standpoint of the coordinated use of the very few radio frequency channels which were available. It was costly in the use of frequencies. While the plan has advantages from the standpoint of freedom of speech, it seemed to fall short of a practical method for coordinating psychological warfare with military operations. The proponents of this plan have since admitted its shortcomings. I admit its advantages."

The technical planning committee, composed of representatives of the Office of War Information, the Coordinator of Inter-American Affairs, the Federal Communications Commission and the Board of War Communications, namely Elmer Davis, Robert Sherwood, Nelson Rockefeller, Don Francisco, and Mr. Craven, after giving some consideration to the two courses of action outlined decided that

1. The responsibility for the conduct of psychological warfare was the Government's. It was unfair to ask private enterprise to assume this terrific burden.
2. There was no valid reason why, in a democracy at war, it was impractical to secure cooperation between Gov-

ernment and private enterprise in winning the war, even though the Government utilized the short wave broadcasting facilities of private enterprise in its psychological warfare objectives.

3. The success of radio psychological warfare, including its effect upon democratic freedom of speech, depended upon the broadcasting of the truth, as contrasted to the lying propaganda of the undemocratic, controlled radio of the enemy. There was no reason why, in the international broadcasting field, the "Voice of America" could not be transmitted faithfully by loyal and patriotic Americans, whether they be employed by Government or by private enterprise. However, it seemed unwise to rely upon any two, or even all, of the seven licensees to transmit the "Voice of America". While the individual judgment of these licensees might be excellent, it was a terrible and costly responsibility to place on enterprise—to represent the voice of one hundred thirty million people of this nation at war.
4. The only practicable means of coordinating effectively psychological warfare efforts with our military operations was a close and intimate liaison between the Joint Chiefs of Staff and the other Government agencies involved in these war activities.

The committee therefore made the following recommendations to the Board of War Communications, via the Federal Communications Commission:

". . . The plans laid by the Committee to meet the psychological warfare and morale requirements are faced by the realities of the existing situation with respect to shortage of critical materials, shortage of manpower, shortage of time, and the difficulties inherent in establishing a completely new organization within the Government. The Committee would therefore make immediate use, in the most practical manner, of existing short wave radio broadcasting facilities as well as the organization of the licensees now operating such facilities. But the Committee considered it likewise essential to increase these facilities as rapidly as possible and so far as necessary to render the desired program service.

"These proposals are set forth as a plan based upon the following principles:

1. The use of all the time of existing and future short wave broadcast transmitters by the Office of War Information and the Coordinator of Inter-American Affairs, in accordance with program schedules mutually agreeable.
2. The purchase, from existing licensees, of 24-hour operation and maintenance service for all the 14 existing transmitters.
3. The contracting for program production as needed, in accord with the specifications of the Office of War Information and the Coordinator of Inter-American Affairs.
4. The purchase by the Government of additional 22 transmitters required; and the contracting with station licensees for the installation and maintenance thereof at existing locations, as specified. These transmitters will remain Government property but options may be given to interested licensees to purchase such transmitters at a fair price from the Government after the war.
5. The negotiation for improvements by licensees of existing facilities as required.
6. The licensing by the Federal Communications Commission of existing licensees to operate the facilities in accordance with the plan.
7. The pooling and coordination of all international broadcasting frequencies to provide an integral system, functioning as a single unit instead of as individual stations.
8. Pending consummation of the plan, the Board of War Communications to allocate for international broadcast use all available operating facilities in other services.

". . . The plan utilizes to the maximum the frequencies now available for assignment to international broadcast stations in the United States. However, 17 additional frequencies are absolutely essential to carrying forward the full program of operation."

In making this decision the committee thrust aside all inhibitions, stating: "Our only motive is to WIN THE WAR."

That, in brief, is the background of how the Voice of America made its debut on the airways.

Today from its New York studios the Office of War Information broadcasts programs to London, from which point they are rebroadcast to the European continent over the medium wave transmitters of the British Broadcasting Corporation. From the OWI San Francisco studios, in a similar manner, the government transmits programs to Sydney, Australia, where they are released over the Australian domestic networks and broadcast over the local medium wave transmitters.

The Office of War Information is providing program material in the form of recordings of the American domestic commercial broadcasts, with the commercial advertising deleted, for use of the medium broadcast stations in Hawaii, Alaska and Puerto Rico, where it is effective in providing American troops and local citizens with morale

(Continued on Page Twenty)

Jim Summers

(Continued from Page Seven)

the door, the net results are graphically displayed in the accompanying photograph. The emotional results of the little affair far exceeded the expectation of all of the boys. Jim admitted very frankly that the gang had absolutely put one over on him and that he was speechless to express his reactions or to express his thanks. As a penalty for being unable to talk to the boys, Jim's "consequences" was set at being forced to unwrap and to hold up for inspection of all present, each and every one of the packages donated. If the off-spring turns out to be a boy it is remarkable the number of "shaving-mugs" he will have to choose from.

The piece-de-resistance being a huge basinette, or "Moses basket" as it is also called, Jim was at a complete loss as to how he was going to get everything transported to his home across the Bay bridge to Berkeley. This was later solved by having to make a complete trip home after office hours to get his car, return to the plant, load it up and go his merry way.

Later, the "Shopping News", an advertising throwaway covering the entire Bay area grabbed on to the novelty of the idea and on front page went overboard with pictures and eulogy publicizing the affair. So what started out to be a closely guarded secret with Jim Summers became intimate knowledge on the front page of a paper which boasts of over 240,000 circulation. We feel sure that the many friends Jim has throughout the other offices will share our wishes for continued good luck and blissful happiness now that he has made his mark on the road of life.

Denver News

By Geo. H. Anderson

WHY a person should want to buy a house in these times is beyond all reason, but Verne Andrews, your Denver noozed, is doing just that. Consequently the job of getting up this keyhole peek of KOA goings on was left to the transmitter end of the news gathering force.

Lt. Com. Slusser, fresh from Londonderry, N. I., dropped in for a few days before reporting for duty in Washington, D. C. Took in the Stock Show, chawed beef with the brand new State Governor, was guest of honor at a luncheon at the transmitter, gave the WACCS a WAVE and goodness knows what else. Man alive! How that fellow gets around.

Carpenter is now dealing off the arm to a bevy of shoats, bedded down in the henhouse. Better be careful boys. One of these days he will be delivering shoat eggs and smoked hams of spring chicken.

Joseph (Wire Chief) Rohrer is still practicing to be a pedagogue, E.S.M.W.T. style. When he has time he doubles for a heating engineer by taking his thermostat apart, resetting the contact, then shivering until a serviceman can set him straight.

Stan Neal, Chief Boatswain Mate of M.C.D., has resigned from all outside activities to further a three-master for Sloans "Ocean."

Walt Morrison is getting in so much flying these days that he is shopping for a set of spurs, so he can "stay in" the chair in M.C.D.

Newest addition to the studio group is W. C. G. Jones, late of KLZ studio and transmitter. That guy has more initials than a British Lord. Welcome to the fold, Jonesey and good luck in your "splatter pinning."

In the wee sma' hours of the morning, in shuffling about and trying to get off the 4:15 station announcement, Andy bumped against the desk and set off a pocket full of matches. Austin was right there with his firehose to put out the blaze and it was with the utmost difficulty that a chair was kept beween the two. I do believe the guy would have done it!

George Pogue, alias Hophead, alias Snowbird, has quite a time getting his supply of "coke." His monthly ration is used up in about three days time. In the remaining twenty-seven days, he has to make out the best he can on Camel cigarettes. Darn the war anyway!!

Gas rationing has almost completely stopped the weekly trips to the mountain cabins. Roy Carier and Nelson are now looking for other things to occupy their time.

Garland Dutton must have quite a pull. He is the only ham in NBC, Denver, that gets to operate. Aurora now has a two and a half meter WERS setup with Garland at the head.

Russ Thompson has taken up record playing and recording and is now scraping the market for pickup, phonograph motor, amplifier and all the sundry apparatus that he can find. The only trouble is that Carl Nesbitt usually beats him to the bargains.

Poor Roy Fell has been having crockery trouble to the tune of two-hundred bucks. Didn't know teeth were that expensive. When his jaw-aches subside, his female hound kicks up and has to be put in jail until she decides to behave herself.

Aubrey Blake has been helping in E.S.M.W.T. laboratory. Did a good job, too, shooting trouble in J. Rohrer's cathode ray oscillograph. Too bad Colorado U had to sink so low as to employ a graduate of Denver U.

Skiing enthusiasts are getting rather rusty this season, what with rubber and gas rationing. The only chance they have for a good skid is when a nemo from a mountain army camp comes up.

C. A. Peregrine is a firm believer in exercise. Since G. R. he has been walking about eighty blocks to work. Upon arrival, all the group two boys are kept busy dashing for pails of water to soothe the blistered pedal extremities. Too bad Henry didn't build a model that gave a hundred miles to the gallon!

"One shot" Roach, local photographer, caught the engineering crew trying to break into the safe for their usual pin money, and came up with the damaging evidence. "Scrooge" Newbold, N.B.C. Denver Paymaster, wields the cane. Gene Carpenter has the "soup" in readiness and Anderson is doing the drilling.

P. S.: We got the dough!

Next month Vern will return with a story about his house buying. Bon Joor.

CLEVELAND NEWS

By Bert Pruitt

Tommy Cox (SE) dons captain's uniform in the Army Signal Corps. Because he is such a likeable fellow, we regret to see Tommy leave WTAM, but when we realize that he's leaving to do his bit in the United States Army Signal Corps, we are proud to shake hands and wish him the best of luck in this new adventure. Tommy came to WTAM in 1929. Previous to that time he led the carefree life of a radio operator. Trips to South and Central America, Europe and the Far East, were nothing to get excited about back in those days. He could tell some exciting stories about his experiences, but he doesn't. He remains quiet and listens to someone rave about a hair-raising trip to Podunk or Oshkosh.

* * *

Fred Everett (TE) and **Barney Pruitt** (CS) have been doing some experimenting since they read the book, "Northwest Passage". Wildcats were numerous back in the days of "Northwest Passage" settling. You know the reputation of wildcats. Well, it seems that a scientific-minded fellow knew about their reputation, too. He got busy and

(Continued on Page Sixteen)

Joe Conn, Journal's Ace Photographer, on Leave to Navy

It is with mingled regret and pride that we announce the loss of our photographic king-pin to the U. S. Navy as a Lieutenant. He was born in the City of Brotherly Love in December, 1907, and received his E.E. degree from Cornell University in 1933. Leaving school he started his professional career as an installer for the New York Telephone Co., and was successively engineer for the RCA Manufacturing Co., and WOR. We next find him chief engineer of KMA, Shenandoah, Iowa. He joined the NBC Chicago Engineering Staff in 1936, and was transferred to the NBC Television Staff in New York early in 1939. He was transferred to the NBC Engineering Development Lab in 1941, and obtained a leave of absence to accept his commission on December 28, 1942. Joe has two steadfast hobbies: Ham Radio (W2MSC) and photography. His photographic technical skill and creativeness are widely known, and he has written many

Lt. J. W. Conn, U.S.N.R.

articles on the subject for this Journal. He was one of the first to build and use the Edgarton Speed Lamp with which he photographed kinescopes in various stages of implosion; he will also be remembered for our artistic front cover design, and the striking photo of New York harbor now gracing the *New York News* column on another page. Joe is a member of Theta Chi and the A.I.E.E. He is married to the well-known Lenore Kingston, Chicago and New York radio and television actress and radio operator in her own right (W2NAZ).

We look to the horizon for the day we may welcome him back, and in the meantime, wish him God speed! (Ed. S.)

The New York News column does not appear this month because of the illness of C. A. Younger, New York Correspondent.

TECHNICAL PRESS REVIEW

By Ed. Stolzenberger

A digest of leading technical articles in the current contemporary press.

[In these busy times few engineers can spare the time required to read all the current technical literature. It will be the purpose of this regular feature to provide an index of current technical articles on radio broadcasting and related subjects.—Ed.]

Proceedings of the I. R. E.

for January, 1943

Contemporary Problems in Television Sound

By C. L. Townsend

The rapid development of television introduced new problems in sound pickup and operation. As the art progresses, engineering tools and methods must not only keep pace with, but generally anticipate, the needs of the program-producing staff in the production of more and more intricate material. The nature of the acoustic problems so raised, and their solutions, are treated in this paper. New tools necessary to proper operation and the methods of their employment are discussed. For a better understanding of television requirements, the methods normally employed in motion pictures and standard radio broadcasting are compared with those in use in the present television studio. Some indications as to what may be required in the future are discussed and possible developments suitable for such use are described.

A Frequency-Modulated Resistance-Capacitance Oscillator

By C. K. Chang

A method of producing frequency-modulated waves is described in which a resistance element in a resistance-capacitance-tuned oscillator is replaced by the output resistance of a variable-u tube. As the grid potential of the latter tube is varied, its output resistance varies, and a wide-band frequency modulation of the oscillator is obtained. Mathematical relations between the frequency variation and the grid-potential change are derived. Experimental results are discussed.

Automatic Frequency and Phase Control of Synchronization in Television Receivers

By K. R. Wendt and G. L. Fredendall

One of the problems in the reception of television images is to provide satisfactory synchronization in the presence of noise. During the past several years considerable experience has been gained with respect to this problem under various receiving conditions. The system of synchronization which has given satisfactory results up to the present time has depended for its operation on the reception and separation of individual pulses. In general, it can be said that with this system satisfactory synchronism can be obtained from those signals which will in all other respects provide an entirely acceptable picture. However, for limiting conditions of service, particularly during early operation, where field strength may be low, an improvement in synchronization will be effective and desirable provided that it does not involve other complications or disadvantages. This paper describes a synchronizing means at the receiver that employs a new principle in the field of synchronization. The principle is automatic frequency and phase control of the saw-tooth scanning voltages. In such a system, synchronization depends on the average of many regularly recurring synchronizing pulses. Noise has insufficient energy at the scanning frequencies to effect control through the direct-current link from which all but relatively long-time variations are filtered out.

Comparison of Voltage and Current Feedback Amplifiers

By E. H. Schulz

This paper points out the differences between an amplifier with voltage feedback and one with current feedback. The effect of variations of amplifier constants on output voltage and current is decreased by either type of negative feedback. Voltage feedback decreases the effect of load impedance on output voltage, and current feedback decreases the effect of load impedance on load current. Voltage feedback increases the damping of a loudspeaker and improves its response. A table is also given to assist in the choice of type and amount of feedback to be used in a given application.

Coupled Resonant Circuits for Transmitters

By N. I. Korman

This paper discusses the design of coupled resonant circuits for use as interstage coupling units in transmitters. Simplifying assumptions are made which, although they reduce somewhat the accuracy and scope of the treatment, result in extremely simple and useful relationships.

Electronics

for January, 1943

Electron Microscopy in Chemistry

By Dr. Vladimir K. Zworykin

In this paper delivered before a joint meeting of the National Industrial Chemical Conference and the Chicago Section, American Chemical Society, Dr. Zworykin described the applications of the electron microscope to chemical research. He also described, briefly, a much smaller, less expensive model thus bringing the electron microscope into a new field of usefulness.

Reactance Networks with Resistance Terminations

By E. S. Purington

A general treatment of bisectable reactance networks with equal resistance terminations, especially with the reactors ideal; illustrated by working out the detailed performance of four-element networks commonly used for simple low-pass purposes. Illustrative curves and numerical examples are given for determining the reactor elements re-

quired to produce a specified curve, and for determining the curve corresponding to a given set of elements.

Wartime Developments in Carrier Current
By George Abraham

Broadcast frequency signals guided over power lines are attenuated to a greater degree than conventional low frequency transmissions. This disadvantage is counterbalanced by the fact that readily obtainable broadcast tuners are easily adapted to reception of such signals. Four systems of distribution and coupling considerations are discussed.

Radio Sounding in the United States
By C. B. Pear, Jr.

Balloon-bourne radio transmitters daily explore meteorological conditions over the earth as part of the means of predicting the weather. This paper is a review of this art and science, describing the equipment and methods utilized.

Reduction of Record Noise by Pickup Design
By A. D. Burt

Design of a record pickup which reduces noise radiated directly into the air. The method of measuring pickup noise is part of this article.

Impedance Magnitude and Phase Charts
By T. C. Blow

Reference sheet and alignment charts permit determination of magnitude and phase of impedance using only straight edge, when resistance and reactance components are given.

A Three Resonant Circuit Transformer
By Marion R. Winkler

A two-stage band-pass amplifier having high and variable selectivity with uniform band pass response uses a three resonant circuit transformer and complementary two circuit transformer. Mr. Winkler provides simplified procedure of designing suitable transformers of optimum performance.

Communications

for January, 1943

Water-Cooled Transmitting Tubes
By K. C. Dewalt and W. J. Walker

A general discussion and review of good operating practice in the installation and operation of water-cooled transmitting tubes.

High Frequency Response of Video Amplifiers
By Albert Preisman

In the first portion of this paper which appeared last month, the author presented an analysis of the voltage amplifier and the resistance coupled amplifier. He then discussed the use of filter theory, and the use of M-derived terminations. In this concluding part of his paper, the author describes another method important in achieving flat response and linearity of phase shift.

Bell Laboratories' Record

for January, 1943

Radio Frequency Voltmeter

The device described is smaller than a can of beans, and measures R-F voltages up to 10,000 volts at frequencies up to 50 megacycles. Its operation depends upon input voltage division through series condensers. A vacuum tube rectifies the R-F and a milliammeter indicates the full voltage.

WTAM's 1100 Club

By Bert Pruitt

WHEN you mention pill pool or ping pong you usually have reference to some commercial recreation center. This, however, is an exception to the rule.

The members of the 1100 Club of WTAM have a recreation center that any club member should be proud of. The club is located on the technical floor here in the NBC Building.

In one room we have tables for cards, ping pong and pool. In addition to this we have a spacious lounge. No club would be complete without a room that you associate with the name of Chick Sales.

I have a peculiar style when it comes to writing. I make it a practice to begin at the middle of a story. From that point I work toward the beginning. When I reach the beginning I reload my fountain pen, then jump to the end, then head toward the middle. The advantage of this style is obvious. I always end up where I started, therefore I never get lost. There's another advantage equally as important: readers have no chance to class my stuff with anything in literature.

Now that we have reached the beginning, let's find out how it was possible for WTAM to have this club.

When we moved into the NBC Building five years ago, Mr. Vernon H. Pribble, station manager, gave his permission for the male employees of WTAM to form the 1070 Club. As far as we know our club is the first one that changed it's name due to an order from Washington . . . It became the 1100 club when we shifted frequency.

Left to right — Johnny Finlayson; Richard Baxter, Announcer and S. Ohio Reporter; Russell Carter, Sales; and Charley Ames, Studio Engineer.

As I was saying before the F.C.C. interruption . . . Mr. Pribble sanctioned the forming of the 1070 Club . . . with qualifications. The qualifications being that nothing stronger than water with 10% chlorine be served in the club. We may have been guilty to a certain extent. The percentage of chlorine may go a little higher than that during the winter months when Lake Erie has a frozen face. But everyone agrees that that is another circumstance beyond the control of anyone in radio.

The club had a name . . . We elected officers . . . And there was the empty space. What should we do? Someone suggested pin ball machines . . . Others wanted a shooting gallery. Clay pigeons, skeet and bingo were discussed. Two engineers thought we should use the available space for five-day bike races. The final votes decided in favor of pool, ping pong and cards.

Vernon H. Pribble, Manager WTAM

We are back where we started. If I followed my system and style religiously I would now jab the final period. In this case I take great pleasure in deviating from the established.

I cannot close before giving credit where credit is due. In behalf of the men at our transmitter and the studios I wish to thank Mr. Pribble for his generosity, consideration and sportsmanship in providing us with the space for this club.

Cleveland News

(Continued from Page Twelve)

experimented with hot cider, rum and butter. His experiments were successful. One mug of this concoction encouraged the experimenters to go into the woods, seek a wildcat, then plant a kiss on the face of the surprised cat. The tantalizing odors of the hot cider, rum and butter, influenced the imagination of the cat to such an extent that he immediately became a devoted chum of the experimenter. Fred and Barney experimented, but they were disappointed . . . They couldn't find any wildcats. Barney was laid up with the flu recently. Wildcat hunting on his ranch at North Olmsted, no doubt.

We don't know whether **Harry Caskey** (CS) goes in for wildcat hunting or not, but we do know that he had quite a tussle with old man flu. Harry won by a K.O. and is now back at work.

* * *

They say **Earl Holl** (TE) carries a suit case to work

(Continued on Page Nineteen)

WOR

By A. W. Stanford

IT HAS been a long time since WOR was heard from in these columns, as a matter of fact it has been so long that we even forgot the date when the last bit of gossip darkened these lilly-white pages. However, all that has been changed, and from now on WOR promises to be a regular contributor.

Almost a score of the fellows in the Engineering Department alone, or about one-third of the total number, are serving our country in the various armed forces or in defense projects. We are compiling a detailed list which we hope to have by the next issue of the JOURNAL.

Owing to the war situation many changes were made in personnel. Barney (Buzzie) Boyle, erstwhile assistant supervisor, is now Supervisor in master control and Howard Donniez was promoted to Assistant Supervisor in the same department.

George D. Robinson is acting supervisor at the Transmitter while Edmund Franke was promoted to jr. assistant supervisor at the same post.

Robert Barkey, transmitter engineer at WOR's FM station W71NY, is expecting his call from Uncle Sam momentarily. We sure will be sorry to see you go, Bob, but the war won't last forever.

Don Hale, prexy of WOR's A.T.E., is another who expects to be called into the armed services any day now. Don is one of the Studio Engineers and very popular with the boys.

W71NY, WOR's FM station, has been operating on curtailed schedule for some time. The station is on the air now daily, except Sunday, from 3 p.m. to 9 p.m.

Richard Quodomine joined the transmitter staff six months ago and hails from Bloomfield, N. J. He commutes 20 miles every day and lately had some tough luck with carburators and gas lines. One day kind-hearted motorists gave him starting pushes six times on the way to work. He has the jalopi overhauled now and everything is under control.

James O'Connor is the proud papa of a new baby girl. This makes two girls in the O'Connor family. Papa O'Connor is one of our studio engineers and was heard tell that the new arrival keeps him pretty busy. Cheer up, Jim, the first six are the hardest.

E. (Stone-crusher) Bergman, Studio Engineer on the "Moonlight Saving Time" trick is one of the late comers to WOR. He came to us from WNYC and seems to thrive on night shift.

Jerry Barton is one of the mainstays of our P. A. Department. When he throws his 250 and odd pounds behind any job the oars begin to bend and the oar locks creak. He is also very good at baseball games and beer barrel tapping.

The promising camera club of WOR has been sadly depleted and for the "Duration" it won't be the same. However, H. Hadden, master control supervisor, carries on on the 8 mm movie side with yours truly, while Geo. D. Robinson, our transmitter supervisor, firmly believes in the virtues of 16 mm movies. There are a few more still camera and movie enthusiasts among the WOR ranks, but we will have to prod the boys for some data.

Well, guess this about all fellows for just now. We hope to double our wordage by next month. 73.

Statewide Ohio News

By Bert Pruitt

WGAR, CLEVELAND, OHIO—Morrie Pierce, chief engineer, is still awaiting flying orders to go overseas . . . Lloyd Wingard and Bill Slater are mulling over plans to consolidate their basement wood-working machinery into a colossal combine . . . Sereno Smith is the Official Shopper for gifts sent to WGAR's boys and girls in the services . . . Ralph Quay plans to visit St. Luke's Hospital soon for attention to his shoulder. Ralph is looking forward to a nice rest in the pleasant company of beautiful nurses . . . WGAR's girl operator, Ruth Lloyd, uses her pet expression, "O! Fiddle". No argument is complete without it . . . Lloyd Wingard, acting chief (if Pierce ever leaves) has compounded a new patent medicine. The product will be known to the public as "DOCTOR WINGARD'S LITTLE LIVER PILLS" . . . Bill Slater's mustache has reached the indecisive stage. We don't know, from day to day, whether he will appear with or without it.

TRANSMITTER—Bill George blew himself to a new set of store teeth. Bill smiles broadly at every opportunity. He wants to be sure they are okay before the standard 90-days' guarantee expires . . . Don McCollister is worrying himself to a frazzle about a newly proposed directional antenna system. Mac is an amateur worrier who does his fretting on a professional basis . . . Dwight Howland went house hunting. He's still hunting . . . Ken Sherman proposes a 48-hour DAY. His teaching schedule, plus a trick at the XMTR, doesn't leave much time for sleep.

MISCELLANEOUS—We have received Christmas messages from Bill Jacob, Bob Fox, and Wm. Hutton. These three boys are in civilian government service . . . Bill Pettipiece and Rollie Courtad are in the Army . . . Ray Bird, formerly a WGAR engineer, and more recently a development engineer for the Astatic Microphone Company, has organized his own enterprise under the name of "The Bird Engineering Company, Cleveland" . . . (Note to Bird: Send check to Ed. Stolzenberger.) Walt Widlar is happy that his "Baby" — relay-broadcast transmitter WEMU — was in readiness recently, when the studio-transmitter lines were out of service for ten hours. An ambitious plumber flooded an underground 900-pair telephone cable. Because of the quick action of McCollister and Wingard, only five minutes air time was lost.

* * *

WMRN, MARION, OHIO, celebrated its second anniversary recently, having been on the air since December 23, 1940. The engineering department played an important part in the birthday celebration program by searching its recording files and supplying the program with recordings of some of the more important programs cut during the past year. Chief Engineer Bob Morrison, of WMRN, was successful in securing "special" gasoline rationing coupons to make a recent trip from Marion to Fort Knox, Kentucky, where WMRN originated an exclusive one-hour broadcast. The program included interviews with soldiers formerly of Marion and surrounding towns. In making application to the gas rationing board, it was necessary to explain the inadequate train and bus facilities due to the amount of equipment plus the danger of breakage, by the baggage smashers. The board, however, was very liberal in issuing enough gas to make the 600-mile remote.

* * *

John Aikenhead, chief engineer of **WADC, AKRON,**

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Yes, we do have the most complete line of precision attenuators in the world, and these **DAVEN** components are recognized, in most discriminating circles, as the best obtainable commercially.

Equally true, our **Super DAVOHM** precision wire-wound resistors and our attenuator type, step-by-step switches have an enviable degree of acceptance.

Output Power Meters, Transmission Measuring Sets, Decade Resistance Boxes, Attenuation Networks, Volume Level Indicators and many other types of **DAVEN Laboratory Test Equipment** are used extensively in electrical, broadcast, sound picture and television fields.

Naturally we are proud of such a record. But we readily admit, and even boast, that we are indebted to those clients who have collaborated in many developments with constructive criticism and suggestions. These have always been welcome.

And the fact that our facilities are taxed with urgent orders will in no way alter this policy.

Please call upon us if you should encounter a problem requiring special design and construction.

THE DAVEN COMPANY

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THE YOUNGEST WARRIOR...

My voice is loud, louder than a thunderclap—even a whisper of mine goes 'round the world.

I travel fast, faster than winged Mercury—only the speed of light is my rival.

I am strong, stronger than the might of Hercules—for I can destroy Fear.

I bind the world together like the oceans.

I cover the earth like the skies.

I speak the language of a thousand tongues.

Men know me everywhere—from the Mississippi to the Volga, from the Yukon to the Nile, and beyond . . .

For I am the youngest Warrior—riding the murderous skies, the shell-torn earth, the bloody highways of the sea . . .

I am the Warning—strident, immediate, merciful . . .
The shaft of Hope to men in darkness,
The Trumpeter of Truth.

My name is universal:

I am the voice of RADIO, deathless and forever.

• • •

The Radio Corporation of America has long pioneered in the development of radio, electronics and television. Today, these developments are performing vital war services. And this war-experience will lead to a richer, fuller Tomorrow . . . for industy, home, and nation.

For outstanding achievement in the production of vital radio equipment, these awards have been given to RCA plants:

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Army-Navy "E" to an RCA Victor plant

ARMY E NAVY

Army-Navy "E" to an RCA Tube plant

ARMY E NAVY

Army-Navy "E" to the RCA Radiomarine Division

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