

The Broadcast Engineers' Journal
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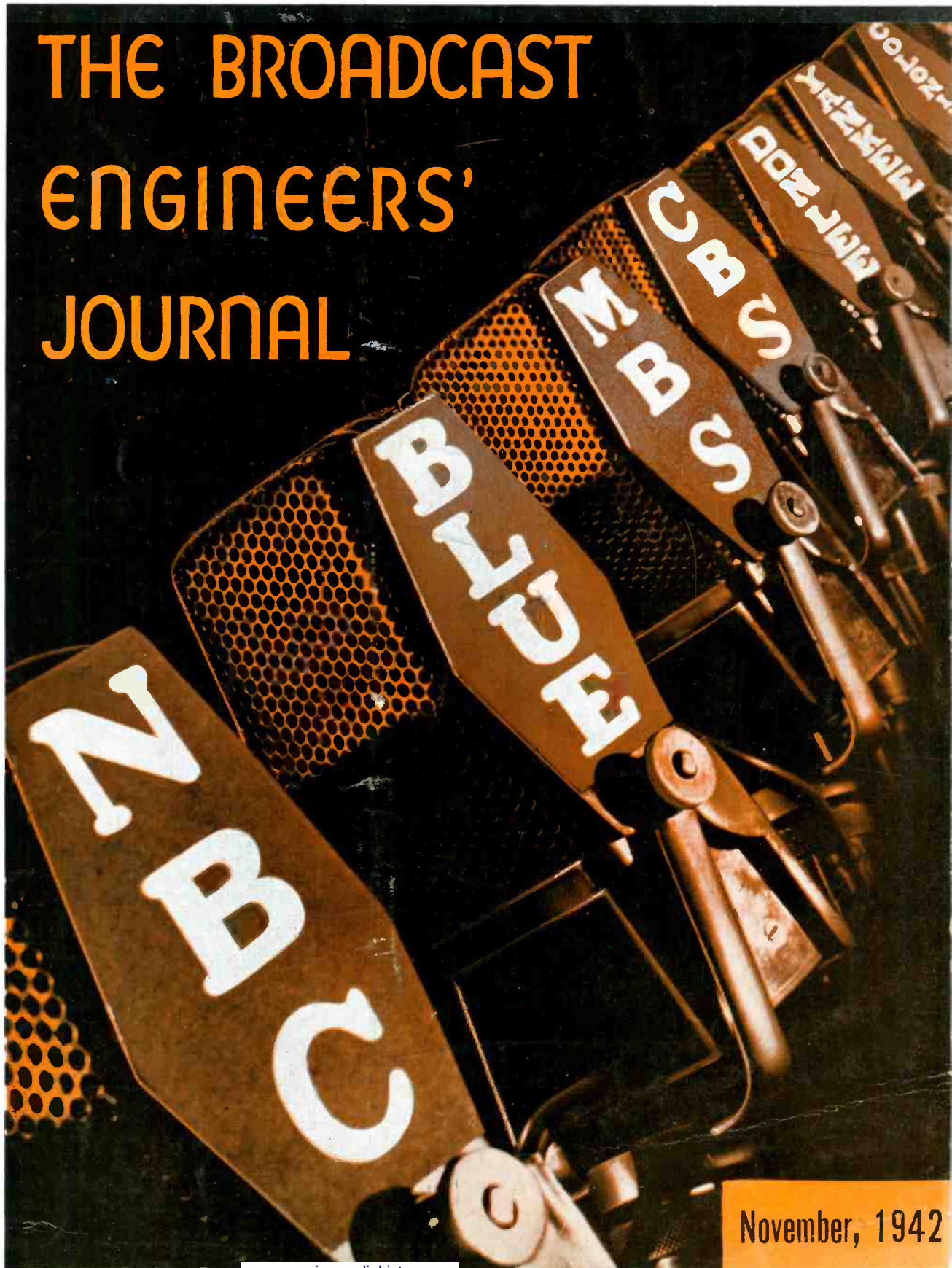
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Blue Field Covers 'This Nation at War'

THE BROADCAST ENGINEERS' JOURNAL



November, 1942



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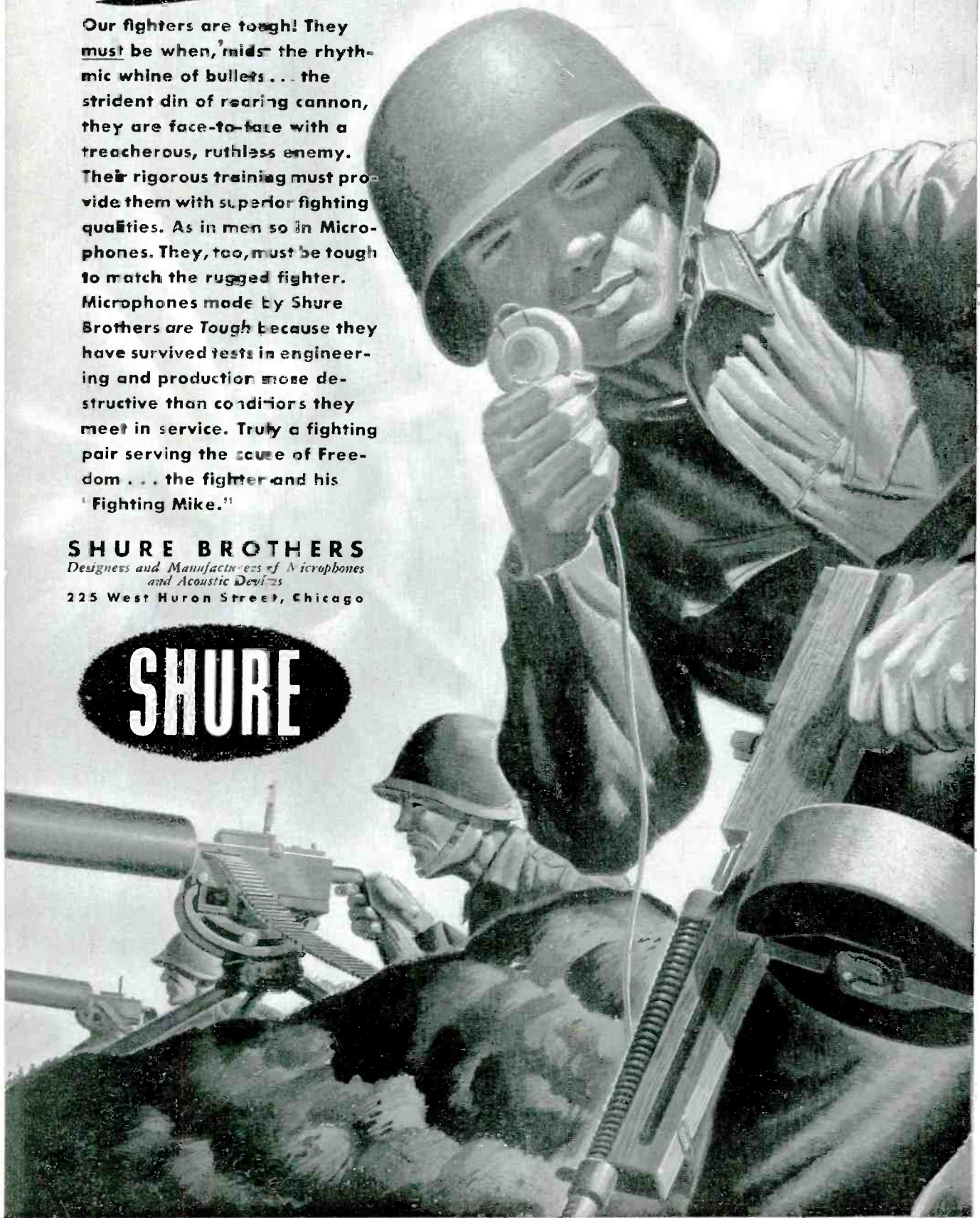


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THE BROADCAST ENGINEERS' JOURNAL

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The Broadcast Engineers' Journal is a privately printed monthly publication, issued by A.T.E. Publications, Inc., a corporation of the State of New Jersey. Address all communications to Editor's office: E. Stolzenberger, 116-03 91st Avenue, Richmond Hill, L. I., N. Y. Telephone Virginia 9-5553. **THE BROADCAST ENGINEERS' JOURNAL IS THE OFFICIAL PUBLICATION OF THE N.A.B.E.T.**

Advertising rates and information supplied on request. Subscription, \$1.50 per year; \$3.00 for three years. Single copies, except Christmas Yearbook, 25c; Christmas Yearbook free to subscribers. All remittances in advance. Foreign: Add postage.

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formerly



Something in the Air...

The greatest force that man has ever known for moving men's hearts and minds is in action daily behind the American scene—a household device that brings into tens of millions of living rooms the latest news of our fighting men on all fronts . . . the sublime gifts of inspiring music . . . the quick tonic of comedy and laughter . . . the welcome relaxation of popular song . . . blessings all to a nation occupied with the grimmest of tasks.

Today, as America's manpower and industrial might begin to make themselves felt on foreign fields, American radio is functioning smoothly, quietly, efficiently,

to strengthen morale on the home front and solidify the national purpose for the great drive to victory.

Fittingly, America's oldest network begins its 1942-43 season with the finest parade of programs in its history—many of them shortwaved to the fighting forces by advertisers glad to provide the boys in the field with these tangible links to home, many others fresh from successful summer tours of leading military camps across the country.

They'll be listened to this year more widely, more eagerly, more gratefully than ever.

The Network Most People Listen to Most



Official Photo U. S. Army Air Corps

A FIELD ENGINEER'S DREAM—LOTS OF ROOM. LOTS OF GOOD EQUIPMENT. NO KIBITZERS

Thor La Croix, Blue field engineer, Hollywood, with ground equipment used at Albuquerque, New Mexico. Bill Baldwin, San Francisco, announcing. La Croix is National Secretary-Treasurer of NABCT

Blue Field Covers 'This Nation at War'

By F. L. Barron

GREAT activity has been the order of the day in the Western Division of the BLUE Network Field and Special Events Departments throughout the past several months, and we feel that the boys have been turning out very creditable jobs on some of the network participation shows, as well as the many purely local shows, such as the opera, bond sales, military camp entertainments, etc.

A notable production that entailed elaborate planning and proved an outstanding success was on the program "This Nation at War," on Tuesday, September 22, 1942.

Engineering was handled by FE Thorus LaCroix of the Hollywood office, but the announcing chore fell to Bill Baldwin of the San Francisco office. Baldwin flew to the Albuquerque Bombardier School a week in advance of the broadcast to arrange the details.

Later, on the program "Bill" gave us a first hand description of the interior workings of the "green-house" or bombardier's position while in actual target practice 10,000 feet above a simulated replica of the German battleship Von Tirpitz marked out on the desert below. Bill was actually "kibitzing" on the bombardier, and acting as moderator on a five-way discussion over the plane inter-phone system. This was all mixed and then sent over the Flying Fortress' own radio transmitter. Baldwin spent nine hours in the air on pre-flight preparations and was nine minutes on the air during the program. It took twelve men to do the actual show.

The plane used for the broadcast was that of the Commanding Officer, Col. Frank Hackett; and Baldwin was the only civilian in the air during the broadcast, and special

permission had to be granted by Major General Arnold, Chief of the U. S. Army Air Corps, before this was permissible.

We might add that Lieut. Howard K. Finch, heard on the ground during the flight portion, was formerly manager of the Lansing, Mich., radio station.

The accompanying Official Photographs of the U. S. Army Air Corps shows several candid shots, outstanding of which is the group inside the "office" of the bomber, and comprise, left to right—Lieut. Howard K. Finch, Richard G. Bulgin, Bill Baldwin, Announcer; Lieut. Robert W. French, and Aviation Cadet Henry Morris who was bombardier on the broadcast flight.



Bill goes "overboard" and down

Cadet Morris scored six hits out of a possible ten on the target, and we are assured that this was no padded score to impress the listening public. Cadet Morris was rather crest-fallen that it was not a full ten-hit card.

Baldwin was hardly safe and sound back in San Francisco before he was busy working on another angle of broadcasting items of National Defense to the Nation. San Francisco had practically gone overboard on the scrap iron drive and rated high throughout the country on a per capita basis, so Bill decided to literally go "Overboard" on the scrap iron question.

Opportunely, the U. S. Navy was opening its student diving school in the Bay Area and Bill elected to report the



"This Nation at War" program broadcasts from 90 feet below. San Francisco Blue Special Events Announcer Bill Baldwin is given final touches before going below. The knife in Baldwin's right hand is purely a defensive weapon to insure that he feels secure.



SLIGHTLY CROWDED BUT DRY

R. J. MacDonnell, San Francisco Field Engineer, and surface equipment. Note loudspeaker and program pickup "mike". "Mac's" right hand, not shown, is really on the main gain.

first days activities at the school. He consented to accompany one of the expert divers down ninety feet to the bottom of the bay and report his reactions to the listening audience.

One item of outstanding technical interest was the method of communication between the divers. Instead of the usual watertight interphone systems, which usually doesn't prove so watertight during broadcasts, a loudspeaker was connected at the surface for all of the topside crew to hear and in front of which the pickup mike was placed for the broadcast. This gave an extremely good pickup and removed the hazard of watersoaked or leaky cables in the future.

Notable on the program was the closing remark of Baldwin that "you will now hear one jerk give four jerks to signal for one jerk to be pulled to the surface."

While on the bottom, Bill got the bright idea to look for scrap iron from an adjacent shipyard—scrap that might have become lost, strayed or mislaid from some of the sprout-

ing hulls nearby, and the result of Bill's idea astounded even the shipyard officials with the quantity that was uncovered in a short space of time.

After returning from these two informative military assignments Bill Baldwin was greeted with a summons from his draft board and is now occupied with the duties of either accepting or declining their invitation. Probably in the near future any word from Bill will bear the notation "Official" and really mean it.

R. J. MacDonnell, FE, "Mac" to us; was the engineer on the diving job and turned in his usual creditable job as the accompanying photograph shows. MacDonnell will be remembered from a previous article on the U. S. S. Shaw. Mac is wondering what the BLUE Special Events Department will plan for his next assignment, but swears that he will follow through and not let broadcasting in general down. Maybe the next issue will report again.



IN THE "OFFICE"

Official Photo U. S. Army Air Corps

Lieutenants Howard K. Finch, Richard G. Bulgin, Bill Baldwin BNC announcer, Lieutenant Robert W. French and Aviation Cadet Henry Morris, bombardier

for OUTSTANDING ACHIEVEMENT...



...the "E" emblem is the highest tribute to the prowess of American Labor in the field of shortwave communications. Hallicrafters workers by their unswerving purpose to produce a product that is better, and to exceed their quota in order that production schedules can be maintained, have been awarded this honor. The accumulative electronic experience gained by Hallicrafters employees will be a dominant factor in future peace time production of advanced designs in shortwave communications receivers.



Official Photo U. S. Army Air Corps
That's a rubber tire behind Bill Baldwin, San Francisco BNC announcer.



Official Photo U. S. Army Air Corps
LAST MINUTE CONFERENCE
Aviation Cadet Henry Morris, Lieutenant Robert W. French, Lieutenant Richard G. Bulgin, Bill Baldwin, and Lieutenant Howard K. Finch have a little chat prior to going aloft

CBS PENSION PLAN

Of interest to all radio people was the recent announcement that CBS stockholders were to vote on a pension plan for all its employees earning over \$3,000 a year. This news was coupled with the announcement that the CBS top executives had asked for a reduction in their own salaries to meet new Federal regulations.

New York News

By C. A. Younger

HAVING thus been officially introduced and plunged into the realm of Journalism—greetings to all of you.

First of all I want to express, for all of us in NY, sincere thanks to President "Jim" Brown and all the Convention Delegates for their efforts in our behalf during their stay here. We all wish they could have spent more time among us.

Secondly, a salute to SE Walter Brown who recently left us to accept a Commission as Captain in the Signal Corps. Brownie was a veteran of NBC and began his career way back when WEAJ had its studios at 195 Broadway. Over the years, Walter turned in many creditable jobs and deserves recognition as one of the industry's pioneers.

Vic Tervola is another of our number who recently entered the Armed Services

Starting with this issue we place the New York Editorial mantle on the shoulders of SE Charley Younger who rates as one of the real old-timers of Broadcasting. From a background of Ham Radio, Charley entered the business in 1924 as Transmitter Operator for WHN. Later he was Control Operator at WGCP when that station had its studios at Grand Central Palace in New York and for a short time served as Field Engineer for WOR. Sound movies claimed his energies from 1928 to 1940, and in June of that year he returned to Broadcasting as Field Engineer for NBC. Six months later Charley was transferred to the Night Studio group and early this year became affiliated with the Blue Network.

as Second Lieutenant in the Signal Corps.

To date, more than thirty of our men in the New York Chapters have become members of the Army, Navy and Marine Corps. Next month we hope to have compiled a complete list of their names so that you can keep track of them. Likewise, we will try to list at that time the

names of the newer members of our staff, and tell you something about them biographically. The pressure of events and the printer's deadline prevents more details at this time.

— * * * * —

The war, and the resultant publication of many excellent texts on Radio and kindred subjects has stimulated a good deal of spare time study among the group here. We give honorable mention to SE Clarence Westover and SE Bill Glasscock.

Clarence has been pursuing a study of Engineering Math during the past few months. If the size and complexity of that brand-new-slip-stick he carries lately is any gauge of his progress we'd guess he is almost ready for his Ph.D.

Bill, on the other hand, has undertaken a particularly husky assignment in another direction. Years ago, while stationed with the Navy in the Far East, Bill picked up the fundamentals of Japanese. Today he is expanding that knowledge, both from the standpoint of Code and Conversation. As the weeks go by, Bill's notes and textbooks grow larger and larger. Before long, we expect he will be able to tell off Hirohito in his own words.

Among the men who are using their
(Continued on Page Fifteen)

Radio's Position in the War Effort

WE PRINT herewith an interesting letter that outlines Radio's position and importance in the war effort.

FEDERAL COMMUNICATIONS COMMISSION
Washington, D. C.

October 22, 1942.

Mr. Neville Miller, President
National Association of Broadcasters
1626 K Street, N. W.
Washington, D. C.

Dear Mr. Miller:

It seems to me that the importance of radio broadcasting in the national war

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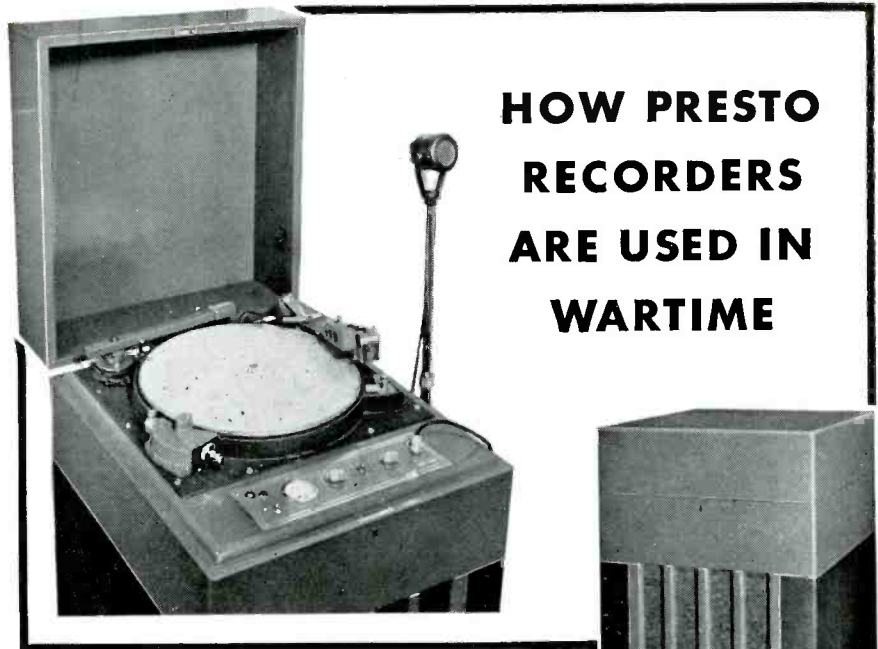
effort is self-evident and can hardly be overstated.

Effective mass communication of information as to why we fight, what we are fighting against, and the efforts which are now being made and must in the future be made to guarantee victory is assured if radio stations can operate at full efficiency. Officials of other agencies of the government may well be able to inform you better than I of the part radio has played in achieving public cooperation and response to specific civilian endeavors such as the elimination of waste, scrap collections, and war bond subscriptions, to name only the most obvious. The Office of Civilian Defense has, I believe, placed a great deal of reliance upon radio to inform citizens of the steps necessary for the adequate protection of the public in the case of airplane attack. The armed forces have been aided in recruitment drives and in other ways through the use of station facilities. As you know, the Office of War Information has issued several revisions of the Radio War Guide, and even the most cursory examination of this document should reveal the essential character of the information which can be and is being conveyed to the public through the medium of radio.

Over and above this sketchy list of specific services performed by radio, I cannot emphasize too strongly the vital role radio plays in the maintenance and building of morale. Radio carries programs of sustaining spiritual inspiration. Its news services and commentators convey the realities of the present struggle and bring realization of the necessity for emergency measures. Its importance in providing entertainment and recreation during periods of rest should by no means be minimized.

The War Manpower Commission and the Selective Service System have classified radio broadcasting as an essential service. It is my belief that unanimous recognition should be given to the necessity for preserving this service at peak efficiency so that it may continue its manifold contributions to the prosecution of the war.

(Signed) James Lawrence Fly,
Chairman.



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Presto recordings are heard daily throughout the world via short wave rebroadcasts to various time zones spreading news, bringing entertainment from home to troops in far-off countries, combating enemy propaganda.

War material manufacturers make Presto records of lectures for training new employees, sound only or sound for slide films. They record machine noises which indicate faulty assembly or adjustment of equipment, give new inspectors the equivalent of a year's working experience in a few weeks.

Busy war industries use the Presto to record conferences, messages and reports. Recording saves time, improves accuracy. The records can be filed like letters, transcribed when necessary.

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TECHNICAL PRESS

A digest of leading

[In these busy times few engineers can spare the time required for the purpose of this regular feature to provide an index of current

Proceedings of the IRE

for October, 1942

An Electronic Potentiometer

By H. A. Honnell

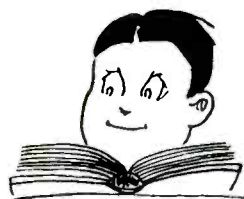
A direct-current, degenerative, slide-back, vacuum-tube voltmeter employing standard potentiometer design principles is described. The voltmeter is completely self-calibrated upon construction. By adjusting the voltmeter to the same reference balance condition for all voltage measurements, the grid current is readily reduced to less than 10⁻⁹ ampere. Voltages in the range from 1 to 100 volts are read to four significant figures in the experimental model of the voltmeter.

New Magnetic Materials

By W. E. Ruder

With the rapid growth of the radio and communication industry, a need for magnetic materials having special properties for this particular application has developed. A number of nickel-iron alloys, such as permalloy, nicaloi, Mu Metal, and variations of these have found wide application as they all have the common property of high permeability at relatively low inductions. Where high resistivity also is desired, additional alloying elements, such as chromium and molybdenum, have been added. Complete freedom from strain, either mechanical or chemical, is necessary for good magnetic quality, and the strain set up by magnetization can be compensated for in many cases by heat treatment in a magnetic field. Silicon-iron alloys and some of the nickel-iron alloys can be very much improved by a combination of cold-rolling and heat treatment which induces a high degree of preferred orientation. This cold-rolled strip has found wide application in various types of electrical apparatus. Permanent-magnet alloys of the alnico type have been very greatly improved recently so that the external energy factor (BH_{max}) is now about three times what it was in the best alnico heretofore available. Comparative data on the different types of permanent-magnet steels and alloys are given, and the new material should find wide application in the radio field. Considerable saving in material and size and weight of apparatus can be made by the application of these outstanding recent developments in magnetic materials provided suitable changes in design are made to allow for the most economical use.

REVIEW



By Ed. Stolzenberger

technical articles in the current contemporary press.

Invited to read all the current technical literature. It will be the technical articles on radio broadcasting and related subjects.—Ed.]

Analysis, Synthesis, and Evaluation of the Transient Response of Television Apparatus

By A. V. Bedford and G. L. Fredendall

The sharpness of detail in a television picture is directly dependent upon the capability of the transmitter for the transmission of abrupt changes in picture half tone. A suitable test signal is a square wave of sufficiently long period. Rules are deduced for the evaluation of the subjective sharpness to be expected in transmitted pictures and may be applied when the squarewave response of the transmitting apparatus is known. Rapid chart methods have been devised for (1) the analysis of a square-wave output into sine-wave amplitude and phase response and (2) the synthesis of a square-wave response from a given set of amplitude and phase characteristics. Analysis furnishes an immediate solution to the familiar but troublesome problem of finding the sine-wave characteristics of television apparatus. The four aspects of the application of square-waves to television, i.e., measurements, analysis, synthesis, and evaluation are presented as a basis for a unified and complete technique. The authors hope that this paper will be a contribution to the general problem of working out electrical specifications for television transmitters and other television apparatus, giving information regarding the steepness of rise and the amplitude of over-swing of the square-wave response.

A New Direct Crystal-Controlled Oscillator for Ultra-Short-Wave Frequencies

By W. P. Mason and I. E. Fair

An ultra-high-frequency crystal oscillator is described which utilizes a mechanical harmonic of an AT or BT crystal. With the oscillator frequencies as high as 197 megacycles, harmonics as high as the 23rd have been excited. Taking the second electrical harmonic of the oscillator, frequencies as high as 300 megacycles, or 1 meter have been obtained. Since a mechanical harmonic is used, the crystal can be of a practical size to handle and adjust. The harmonic vibration of the AT and BT crystals have as low a temperature coefficient as the fundamental mode, and temperature coefficients of less than two parts per million per degree centigrade are easily obtained. Stability curves for this type of oscillator are shown and the results.

A Portable High-Frequency Square-Wave Oscillograph for Television

By R. D. Kell, A. V. Bedford and H. N. Kozanowski

A portable high-frequency oscillograph for television is described by which a square-wave (100 kilocycle) response may be viewed as a dotted wave and readily recorded as a series of readings. The dots are spaced at 1/30- (or 1/20-) microsecond intervals. No electrical connection is required between the oscillograph and the square-wave generator other than that established through the apparatus under test since the synchronous sweep and timing dots are devised from the square-wave response of the apparatus. Circuit diagrams of the square-wave generator and square-wave oscillograph are given.

An Evaluation of Radio-Noise-Meter Performance in Terms of Listening Experience

By Charles M. Burrill

An account is given of listening tests conducted, with the co-operation of the Joint Co-ordination Committee on Radio Reception of the Edison Electric Institute, National Electrical Manufacturers Association, and Radio Manufacturers Association, for the purpose of indicating how closely instruments made in accordance with the latest radio-noise-meter specifications of the Joint Co-ordination Committee meet the objective of giving readings proportional to annoyance for all types of radio noise. Thirty people participated in the tests which involved three types of radio noise and three different radio-noise meters. Standard statistical methods are used in analyzing the results, and these methods are explained in simple fashion for the benefit of radio engineers who are unfamiliar with statistical science. The general conclusion is that the new radio-noise-meter performance is very satisfactory.

Communications

for October, 1942

An Analysis of Audio-Frequency Response Charts

By H. Holubow

This paper derives several graphs from derived formulas, which permit rapid and accurate determination of the insertion loss due to series or shunt reactance in audio circuits.

The Steady State Response of Circuits

By D. L. Waidehlich

With the increased study of non-sinusoidal periodic waves has come the development of different methods of determining the steady state response of circuits to these waves. Non-sinusoidal periodic waves are encountered frequently, for example, in welding, television, and rectifier circuits, and their resolution has become of considerable importance. The subjects to be considered in this paper are a discussion of the steady state response of circuits and of the various analytical methods now used in determining this steady response, and the introduction of another method of obtaining the steady state.

(Continued on Page Eighteen)

Cleveland News

By Bert Pruitt

GRANDMA sits in front of her radio biting her finger nails while listening to the thriller, "Who Threw That Turnip?", and while sitting there, building up an unparalleled hatred for the turnip thrower, it is doubtful if grandma considers the fact that the thug of the flying turnip travelled through countless relays. And it probably would be a surprise to her to learn that the turnip wouldn't have been chucked at all if the transmitter man had gone to sleep and let his foot fall on the "off" button!

Likewise, Aunt Het may be nursing a lifetime grudge against the villain who threw his wife out into a snow bank one night last February. The fact that the villain's frigid laugh had to go through a 50 K. W. tube, sizzling with heat, means naught to Het. He's still a durned viper to her.

Our transmitter men take a more realistic squint at life. They know that there's little sentiment connected with a tear jerker if a main rectifier lifts you out of your chair at the crucial moment. One look at the drooping grid of an 866 makes one forget all about flying turnips.

We have a new member in our department. And while we are on this subject we take great pleasure in introducing you to Mr. Leonard's (Eng-In-Chg) secretary.

The same theory applies to the studio gang. During one's early years in radio he is apt to turn platters with the tears making permanent blemishes in the grooved tragedy. But

one's tear duct glands are very likely to dry up like a plucked leaf when he starts a choicy bit of drama at 78 when the instructions say 33 1-3.

Marian Hercik has been an employee of WTAM since 1936. She began as a stenographer in the stenographic department and has been in charge of that department during the past two years.

Come to think of it, there is nothing I like better than writing about secretaries. But inasmuch as this is my first attempt at trying to shine up to a secretary via a typewriter ribbon I am finding the going a little tough. Everyone knows it is dangerous to put it down in writing, so I am going to play safe by merely saying: Welcome to our midst, Miss Hercik. Gee . . . I wish I were a Chiefie.

Captain C. S. Bidlack (WTAM, SE), gave us all a pleasant surprise the other day when he dropped in to say "Hello" to all of his friends. Cecil is stationed at Fort Hayes, Columbus, Ohio.

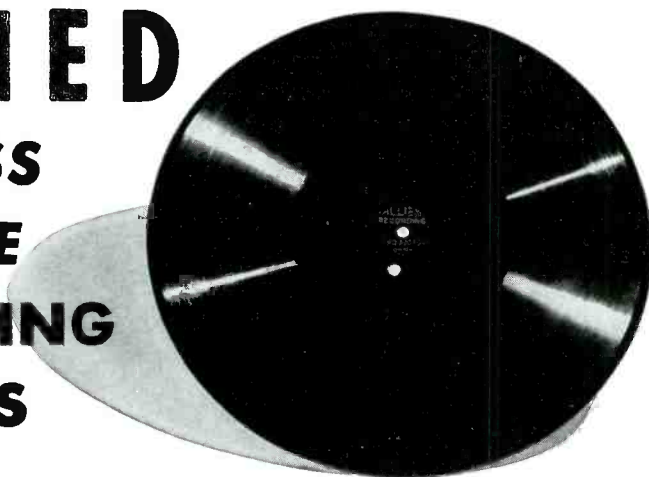
We received a letter from our friend, Lt. John Hicks. John says that he has gained ten pounds since he gave up announcing to become a Leatherneck.

Vacations are now a thing of the past, so we are not at all surprised to see books and slide rules replacing fishing instructions and those priceless tips that give you the key to

(Continued on Page Thirteen)

If you have not been using or have not yet tried Allied's New Glass Base Discs, a trial will convince you of their merits and superior quality — at no premium in the cost to you. We invite you to try this disc — that is how we obtain new customers. We feel certain that you will reorder — that is how we build sales volume — from satisfied users. Your telephone call, letter, wire or cable will receive our prompt and courteous attention.

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Behind the Mike

By Con Conrad

LT. WILLIAM P. TAYLOR, formerly of the WLS, Chicago, engineering staff, dropped into the studios for a visit while going through Chicago to his new assignment with the Ferry Command somewhere in South Africa.

A. W. Hjorth of the NBC engineering staff in Chicago is using his spare time to teach in the ESMWT courses now running at Illinois Institute of Technology.

T. M. Wynn is new to the engineering staff of WCBI, Columbus, Miss., replacing Ray Faust, who has taken military leave to join the armed forces.

Jean Smith, control engineer for WRR, Dallas, Texas, has taken military leave to join the army.

Ruth Schweikert, another of the fairer sex to join the engineering ranks of radio control operators, she is now employed on the staff of WKST, New Castle, Penna.

Phil Greenstone, studio engineer for WLIB, Brooklyn, takes military leave to join the First Fighter Command with the army air forces.

Martin Gabriel has been added to the engineering staff of WOWO-WGL, Ft. Wayne.

Howard Kaplan of the engineering department, WJWC, Chicago, Ill., has taken leave and has joined the army.

William Schooley has been added to the engineering staff of NBC, Chicago, as an apprentice to undergo training for future full time engineering duties.

Lt. Arnold Nygren, whom we announced some time ago as taking leave from his chief engineering duties with WFIL, Philadelphia, has completed his training course and is now assigned to a Navy aircraft factory at the Philadelphia Navy Yard.

Charles York, new to radio, has joined the engineering staff of WREN, Lawrence, Kansas.

Palmer Green of the WKRC engineering staff in Cincinnati, Ohio, has resigned after six years of service to assume new duties with Western Electric for war work with the Navy.

Ralph Knowles has been added to the apprentice engineering staff of NBC, Chicago, to undergo training for future full time work in engineering.

Earl James, field engineer for WABC-CBS, New York, has been given his military leave to join the armed forces.

Carl Christiansen of the engineering staff of KYA, San Francisco, has been inducted into the army.

F. Schley has recently joined the engineering staff of WTOG, Savannah, replacing James Haynes who has been promoted to remote engineer.

Ralph Ward, WFIL, Philadelphia engineering staff, has been inducted into the armed services.

Jack Duncan and Irving Lively have joined the engineering department of WAVE, Louisville, Ky. They replace

men who have left to join the armed services, the most recent being Art Stevens.

D. R. Fitch and Art Elkins of the Chicago NBC engineering staff have been comparing recent notes on their new daughters.

Arthur Fulton has joined the Don Lee Broadcasting System, Hollywood. Fulton recently operated the Fulton Sound Enterprises in Hollywood.

Lt. George Maki, formerly of NBC-CBS, Chicago, and WIND, Gary, Ind., in Chicago on business for the Army Signal Corps. Lt. Maki is preparing transmitters for the signal corps world wide communications.

Captain L. L. Washburn, formerly of the NBC engineering staff in Chicago, recently on leave. Captain Washburn is connected with the Signal Corps in procurement and expediting of signal equipment.

James Skidmore of the KRVG, Weslaco, Texas, engineering staff has been transferred to the transmitter force and in the control room he has been replaced by Mary McAlpin.

L. E. Heiden, NBC studio engineer, using his spare time to teach ESMWT students at the Illinois Institute of Technology in Chicago.

A. C. Heck, chief engineer, WPIC, Sharon, Penna., has been named radio aide for the Mercer County Defense Council.

Howard Yuen holds claim to be the only Chinese technician employed in the broadcasting engineering field. He recently joined the staff of KSFO, San Francisco.

Clyde Green of WTCN, Minneapolis engineering staff, has been appointed a First Lieutenant in the Army Air Corps.

Cleveland News

(Continued from Page Twelve)

the lock to the door that leads to fame on your favorite golf course. Whew . . . sentences like that leave me panting. I've got to get some exercise!

Our Kilocycle Nimrods are taking to the woods for the hunting season. Some of the fellows poke a mean ball of fire at a retreating rabbit.

I gave up hunting two years ago. I shot and crippled a rabbit. He went into a hollow log, at least I thought he did, so I reached back into the log for a rabbit fry. I grabbed the wrong end of a skunk instead!

From the number of new fur coats the better-halves are wearing one would be led to believe that we have some big-time trappers here at the station.

I wonder how J. J. Francis would look in a big raccoon coat? J. J. has to stand on a special box to reach the arms of the turntables.

See you in December. '73 till then.

Notes From KPO

By Mort Brewer

SINCE the last KPO news was published we have had some changes in personnel. Bob Barnes has left us and is now connected with the Radio Research Labs, at Harvard University, Cambridge, Mass. Bob reports that he likes the work very well, but says the food and weather are impossible. Evidently, the people around Boston don't know what good steaks and sour French Bread are:

Taking Bob's place for the duration is Ralph Stubbe who comes to us by way of the Radio Department of the Sheriff's Office of San Mateo County, the Palo Alto Police Department, and the Kaar Engineering Company of Palo Alto. With this background, Brother Stubbe is finding broadcast transmitter operation a cinch.

Another addition to the KPO staff is Andrew "Andy" B. Wauchope. Andy is new to the broadcast game, but is an old time ship and point-to-point operator. It really is a small world, because Mort Brewer, KPO TE, says that when he went to sea 12 years ago, Andy was his chief operator. Mort says he still remembers the first job Andy assigned him on the old President Pierce—putting carbon papers in the message blanks. About that time KPH opens up with six messages which Andy copied, only to find that Mort had put the carbon papers in backwards. Mort still remembers the dirty look he got.

This year's summer relief job at KPO has been filled by Harry Puccetti, who comes to us by way of Douglas Aircraft and station KLX. Harry says that this is the best job he has ever had and hopes that he can stay permanently with NBC.

As this goes to press, we find most of the KPO vacations are finished, with little activity reported on vacations. The rubber shortage really did take a toll this year on protracted journeys.

Art Dingle, KPO, TE, reports a short vacation trip to the Feather River Country. Not many fish, but plenty of alibis.

Walt Kellogg, KPO, TE, reports a very quiet vacation spent at home, doing most of the little chores that most of us should stay at home and do at any time.

Ed Manning, KPO, TE, just back from his vacation, but states that he stuck around close and spent most of his time fighting the fog, and the very dim "dim-out" section where he lives.

Bill McAulay, KPO, ME, did beat the rubber shortage by taking a vacation trip by bus to the Lake Tahoe region. Bill is still fighting mad at the Bus Company—seems as though they misdirected his luggage. The luggage, with everything that Bill took along with him except the clothes on his back arrived three days later. Can you blame him?

Ed Poage, KPO, Assist. Stn. Engr., also reports a stay-at-home vacation. Seems like all the boys agree that staying home on vacation is not half bad, in fact has many advantages.

Mort Brewer, KPO, TE, and also your reporter, is last on the list, so now is making the rest of the boys jealous by telling what he is going to do. Intends to do some bass fishing and some duck hunting, both "close-to-home" activities. Reports only one bass fishing trip so far this year. As usual, my wife caught all the fish; five to my one, although that measly one was a "little" 20 pounder.

Joe Baker, KPO, Station Engineer, was the only one of the KPO men to really have a "vacation-as-usual". However, years ago, Joe laid his plans for just such vacation emergencies when he and Joe, Jr., spent many of their spare hours building the beautiful sail boat that is Joe's hobby. Joe says that he and the family spent a very pleasant vacation just sailing on the Bay, and up the Sacramento River. He is all smiles because he thinks it will be a heck of a long time before the government starts rationing wind.

NOTE RE CHRISTMAS ISSUE

Next month we expect to put out an issue worthy of our past and still in keeping with war restrictions. To all who contribute in any way to our Journal: Time is of the essence. Assist by getting material in on time. Thanks!

OVER THERE!

Once again, it's "Over There" that our armed forces are doing a magnificent job. And it's a comfort to know that they're making good use of the Radio Equipment they're getting!

So, when you have difficulty in obtaining material, just remember that it's being sent where it will do the most good for all of us.

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KGO Notes

By Jim Ball

KGO has two new men who should be introduced to the N.A.B.E.T. They are Hervey E. Fritch and Herbert V. Kramer. Mr. Fritch has been at KGO for about six months and had been working on the Frequency Modulated station at the Samuel Gompers Trade School in San Francisco. Hervey has been studying up on his code lately so that he can get himself a Second Class Telegraph ticket in addition to his First Class Telephone; just in case?

Mr. Herbert Kramer has been at KGO for three months and been in the radio field since 1931. He comes well equipped with various tickets, viz.: First Class Telephone, Second Class Telegraph, and Ham tickets and activity. Herb has taught in Radio School but says at last he is in the field that he likes the best, and has made many friends at KGO and the BLUE during his short stay with us.

Henry Dunton hasn't been doing any fishing lately because of the fact that Uncle Sam doesn't encourage boat trips on the Bay. Some of the boys have suggested that Henry build a big fish pond in his back yard, but Dunton says his neighbors' cats are too active. The boys have been giving the high eyebrow to Dunt's white walled tires lately but he swears that they came with the car.

George Irwin bought himself a new house a few months ago and has been spending all his spare time improving around the place. George says it really is a big house but having a daughter that is just growing up, space is still at a premium and it prevents him from working at his hobby. (Ed.'s Note:—George didn't say what his hobby was.)

Shorty Evans, Chief Engineer at KGO has been busy building a barn on his ranch. Shorty beat most of us to the house building proposition, now he is taking care of the "house" for his farm stock. Shorty's pride is the sturdiness of the family dwelling, and says that it should last well over a hundred years. After that he expects to move into the city as he will be tired of commuting by that time anyway.

Jim Blanchet has bought himself a model railroad to take the place of his former hobby of Ham radio; and I have a hunch that Al Eldridge would like to partake of the same medicine. Al has a swell movie camera and projector and has been showing his friends some pictures he had taken while on vacation. Al is always busy around his house in which he takes great pride.

Your Reporter, Jim Ball can only report that he also bought a house within the last year and can understand why guys disappear from circulation after they buy a house. All time spent working around the new place.

KGO's contributions to the war service have been, First Lieut. Richard T. Parks of the Army Air Corps., Myron T. Case now attached to the research division of Columbia University, and Robert K. Nelson, who is radio operator on a well known ship of the Merchant Marine.

Los Angeles News

(Continued from Page Fourteen)

Army Air Corps, stationed at the Officers Training School, Miami. He was prominent in the activities of the Sheriff's Communication Reserve.

John Hidy, ex KFI-KECA SE, is now "researching" for NDRC in the new lab at Mineola, near Mitchell Field, L. I.

If you are planning a duck dinner, invite Norm Leonard, KFI-KECA SE—he'll bring the ducks all right. He shot seven at Big Bear Lake on the opening day of the season, Sprig, Mallard, Teal, Blue Bill, Spoon Bill and Red Heads. Umm yum.

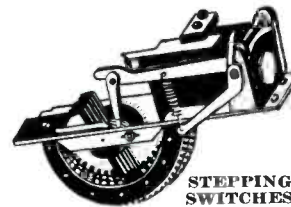
Garratt Arnold, another pioneer in radio broadcasting on the Pacific Coast, is now a Captain in the Army Air Corps, currently located at Stout Field, Indianapolis. He built KDN atop the Fairmont Hotel in San Francisco about twenty years ago; also the station operated by the Hamburger Store here, and was an engineer at KFI about the time it became "a powerful 500 watt station" in '23 or '24.

In competition with more than 100 house publications WOW News Tower Magazine, the house organ of WOW, Omaha, has received an award of merit for superiority in production, editorial content and appearance. We're looking forward to a column of news and views of the ten NABET engineers at that station in the Journal soon.

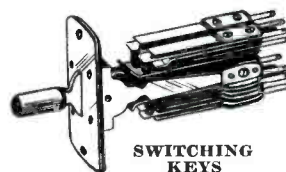
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New York News

(Continued from Page Fifteen)

ation's Cocktail Party at the Savoy-Plaza. As president of the A.A., George Milne managed the affair—so you know everybody had a darned good time. Here's hoping for a repeat performance soon.

All of which reminds me: If you are on the Blue and have not as yet joined the A.A., sign up as soon as you can. Norma Olsen is Engineering's representative.

— * * * * —

Elsewhere in this issue we present for your information a copy of a letter to NAB President Miller from FCC Chairman Fly. It should help to clarify the relationship of Broadcast Engineers and Technicians to the War Effort. One outstanding demonstration of the importance of Broadcasting was the verbal barrage our short wave stations laid over France and the Mediterranean Countries at the same instant that our troops were landing on the shores of North Africa. If anyone of you happened to tune



J. Douglas Fortune

through the Short-wave Spectrum on that morning you will undoubtedly agree that the Axis could never whip up anything to equal it. It was a swell job of coordination and everyone who had any part in it from the OWI on down deserves a compliment.

Douglas Fortune Killed In Plane Crash

J. Douglas Fortune, industrial sales engineer of Thordarson Electric Manufacturing Company, was fatally injured while piloting a plane near Chicago on Saturday, October 17. Mr. Fortune was internationally known for his development work in radio and electronic equipment. During the last eight years he had been employed at the Thordarson Electric Manufacturing Company. Until 1939, as research and development engineer, he assisted in the creating and perfecting of many Thordarson Products. In 1939 he was promoted to the position of chief executive of the industrial sales division in which capacity he became well known throughout the electronic industry for his engineering ability. In addition, Mr. Fortune had been a regular contributor to many leading radio publications and was the author of "Amateur Radio," a book widely read by amateur radio operators. Mr. Fortune's untimely death is a great loss to the radio industry which he so faithfully served.

Technical Press Review

(Continued from Page Eleven)

Electronics

for October

Radiation Instruments Using Geiger Muller Tubes

By Paul Weisz

Circuits for use with Geiger Muller tubes for measurement of radiation. Audible and visual methods, high speed counting, quantitative measurements are discussed.

Applications of Cathode-Ray Tubes

By Beverly Dudley

The great number of applications of cathode ray tubes are surveyed, as an introduction to the uses of this versatile tube in ultrahigh frequency technique.

Phase Shifting and Amplitude Control Networks

By W. S. Duttera

Design charts present a graphical solution to the problem of determining the network required to deliver proper power to each of several loads fed by the same source. Phase and amplitude relations of coupling network are easily determined.

Temperature Measurement and Control by Electronics

By Craig Walsh

Electronics has played a conspicuous role in the development of temperature measurement and control instruments

during the past several years. This is a bring-the-reader-up-to-date-article with some background of temperature measurement and control in general, and a description of several electronic instruments.

Reactance Tubes in F-M Applications

By August Hund

The behavior of reactance tubes, particularly with reference to their use in frequency modulation circuits is treated. Emphasis is placed on the physical operation of such tube circuits.

T to Pi Transformation Simplified

By H. Stockman

In both communication and power work Pi and T networks are important. This paper describes a simple way to transform one to the other, with examples.

Electronic Counter for Rapid Impulses

By Bertram Wellman and Kenneth Roeder

Useful in the biological study of nerve potentials, this thyratron circuit scales down the incoming pulses so that 600 impulses per second can be counted.

Simplified Copper Wire Calculations

By Leonard Tulauskas

A simple carry-it-in-your-head method of determining the resistance, area and diameter of copper wire. Slide rule, and graphical methods and a resistance-temperature rise chart are also presented.

Cleveland Chapter Holds Meeting At Hotel Hollenden—Brandt Gets Shot

HAROLD BRANDT, Cleveland Chapter Chairman, called a meeting for November 11th. Our old standby, the Hotel Hollenden was chosen as the most likely place to offer that certain something that all gain grinders, supervisors and transmitter men expect for a reasonable amount of purchasing power.

Considering the fact that Broadcasting must continue as usual, we had a surprisingly good turnout . . . In fact, 100 per cent when you account for the men working at the transmitter and the studios.

This meeting proved that engineers are taking the rubber shortage seriously . . . Cars coming in from Brecksville were loaded to the bumpers . . . Studio men resorted to that certain mode of transportation that the city furnishes.

This started out to be a resume of our meeting at the Hollenden . . . This is a perfect indication of how easy it is to be led astray in this grim old world . . . In nothing flat I jump from a comfortable chair in the Vogue room of the Hollenden to a molar's jolting plank with four wheels attached to it.

Chairman Brandt spent considerable time giving us the low down on the National Meeting . . . A large percentage of you have been at local meetings since the National Convention so I rather think it would be a waste of time to go into a detailed story of our discussions at the meeting. Those in the know know . . . Those not in the know won't know after reading this.

And now let me tell you about a plot an insignificant studio engineer perpetrated . . . The victim was our likeable, jovial, vamera'shy Chairman . . . I hang my head in shame when I find it necessary to admit that I am the guilty studio engineer.

But I am determined to tell the truth regardless of the consequences . . . In case I am burned at the stake, or hanged at sunrise, I would appreciate it if the National Budget could afford a bouquet of dandelions.

Last May Mr. Brandt says to me, "Pruitt . . . you're it!"

"What have I done?" I asked defensively.

"That's just it . . . You haven't done anything, so I'm giving you the job of Chapter Editor!"

"Good heavens!" I exclaimed . . . "I can't even carry on a decent correspondence with my creditors . . . or vice-versa . . . Do you mean to tell me I am expected to compete with Tom Gootee, Ed Stolzenberger and all those other famous men of the typewriter?"

"Yes . . . and I want to see some publicity for our men around here!" Brandt said this, then aimed at a nearby cuspidor . . . shot, and garnered himself a perfect bull's eye.

"O. K." I answered . . . "How about a picture and material for a biography?"

"Who . . . Me?" Questioned Brandt in surprise.

That was last May . . . I have been waiting for the picture and material since then.

Well, even a studio engineer reaches the end of his patience and endurance . . . To make a long story coherent I will end by saying that I hired a photographer . . . Placed him under the table at the Hollenden and got a picture of Brandt when he least expected it . . . I'm now trying to figure out a way to get biography material to go with the picture.

By Bert Pruitt

San Francisco News

By F. L. Barron

ED. PARKHURST, ME, supplied the boys with a laugh when he told of being on a pickup at Tulare, Calif., for an "Army Hour" program one week end. It seems that the broadcast was from a large Dairy Company there and they had made elaborate preparations to have the proceedings well photographed for keep-sake purposes. It turned out that the town photographer was also the local undertaker and at the time that he should have been taking pictures, he was called out to officiate at a funeral. The Trans-continental went unphotographed.

Lee Kolm, CR Supvr., and our outstanding Kegler proved his point in the ownership of your own bowling ball. Shortly after acquiring his, he ran a series of very successful games, his highest score being 251, which is not bad on any man's alleys.

Hal Ashby, SE, still burning more gunpowder than the Japs used up at Pearl Harbor, making life miserable for the wild ducks which abound around the Bay district. Hal is not worrying about "meatless Tuesdays" as long as he can still get shotgun shells. The boy is good at it too.

Clark Sanders, FE, spending all his time commuting from S. F. to the Pacific North West on BLUE field pickups. Doesn't get much time to complete some of the furniture that he has underway at home. Building his own furniture is Clark's hobby, you know, and he has real worries every time the Priorities Board issues a new edict.

Vacations are practically at an end for this year around this office and the usual report from almost everybody is that they got acquainted with their own back yards, repairing their houses, or digging in next year's "victory garden". "The Senator," or Thomas M. Watson, SE, to you, is a little on the outside on these discussions as Tommy lives at a hotel and the extent of his "victory garden" would have to be the confines of a flower pot. Jovial Tommy always enjoys hearing the others talk about mucking in the dirt though.

Capitol Punishment

By Gordon I. Henry

THE Navy Department blasted quite a hole in the Washington Division last month. Division Engineer A. E. Johnson was commissioned a Lieutenant (S.G.) in the United States Naval Reserve and ordered to active duty November 24 for his indoctrination course at Dartmouth College. Mr. Johnson is a native son of Florida but the sea lured him from the Sunshine State in 1919 and he spent five years roaming the world as an operator aboard ship. In 1924 he came to WRC as an operator and four years later was promoted to engineer in charge of the Washington Division of NBC.



A. E. Johnson, Engineer in charge of Washington Division of NBC

"Johnny," as he is known to the old timers, leaves for his new duties with the best wishes of the entire chapter. We know his career in the Navy will be a success and the Navy's gain will be our loss.

Another old timer, (scuse it please), William L. Simmons, S.E., has received his commission in the USNR, also as a Lieutenant (S.G.) and left for Dartmouth with Mr. Johnson. Bill says he just can't get away from the boss. We predicted this two months ago as Bill was getting tired of shopping for presents to give departing members.

Eddie Berg, T.E., at WMAL, received his warrant in the Navy and was off to Corpus Christi, Texas, before he had time to say farewell to the studio gang. Look now for our Relief Control Supervisor to join him as Hamill and Berg were practically inseparable. Ralph even admits he has made several stops at 1320 "G" Street.

Perhaps the rest of the crew can keep the S.S. Trans-Lux afloat until temporary repairs are made.

Washington's last casualty (we hope) was Jack Roney, WRC announcer. Jackson is a Lieutenant (J.G.) in the U.S.N.R. and after a short training period will be assigned as a flight instructor.

Engineering Secretary, Patty Birgfeld, threatens to join the WAVES in self-defense.

Uncle Sam exercised his power of Eminent Domain once again, this time taking over the Normandy Building in Washington where the National Association of Broadcasters occupy one floor. Wonder where they will move with the overcrowded government offices taking all available space.

Not mentioning any names, but the relief operator from New York, who after a few days in Washington returned to New York, says he knows what D. C. stands for — Definitely Crowded.

Sam Newman returned from the Convention in N. Y. with a small book written by a gentleman named Hoyle but refuses to give any explanation.

National President, J. H. Brown of Hollywood, was a visitor at the Washington studios accompanied by F. C. Schnepfer of Chicago, Cliff Rothery of San Francisco and Russ Thompson of Denver.

The new boss, Don Cooper is calling. NBC'n you.

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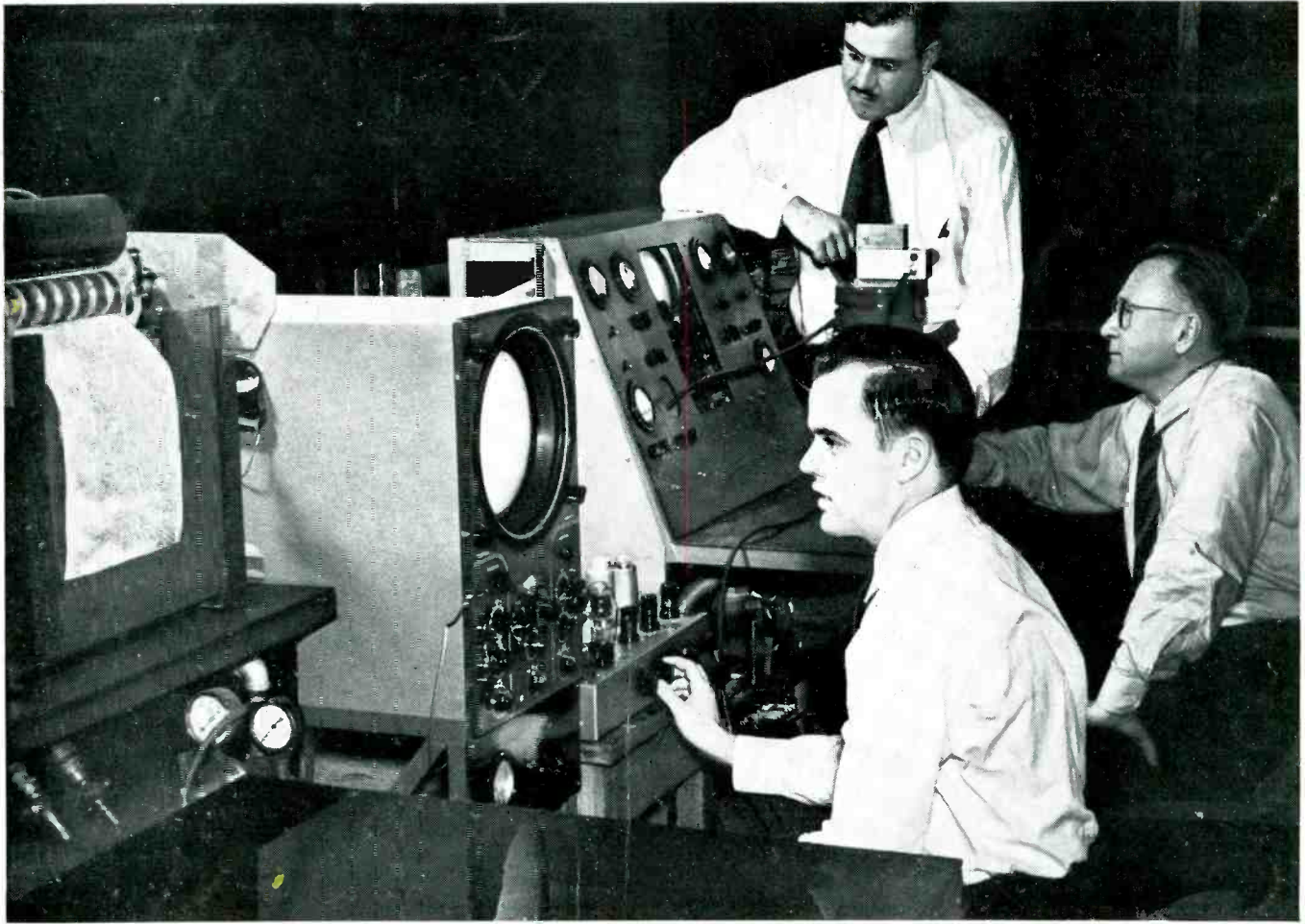
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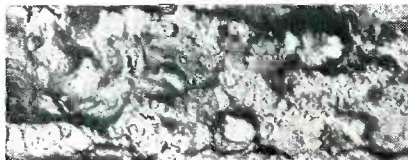


RCA Laboratories Scientists and the new RCA Electron Scanning Microscope. Dr. James Hillier (foreground), Dr. V. K. Zworykin and Richard L. Snyder.

FROM THREE WONDERS... A FOURTH!

Like a vast, flowing river, the progress of inventive science is fed by many tributary streams . . . streams of earlier research, discovery and invention.

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Surface of etched nickel, as seen by the new RCA Electron Scanning Microscope.

Still in the development stage in the RCA Laboratories, this new microscope permits study and analysis of surfaces of opaque objects—even metals. "Scanning" the surface with a beam of electrons, it prints a greatly enlarged picture.

A sheet of metal, smooth as glass to the unaided eye, looks like an airplane view of the Grand Canyon. Every detail of its surface is shown sharp and clear . . . The Electron Scanning Microscope is but one of the many research projects in RCA Laboratories which link the present with the future of Electronics.



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