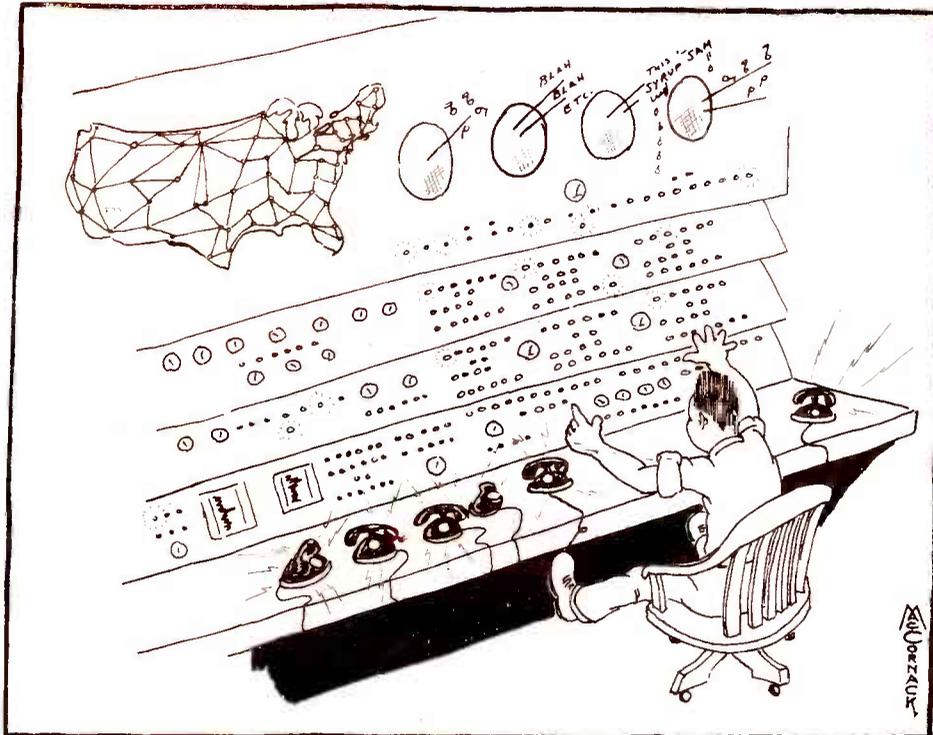


JOURNAL

DIRECTED TO BROADCAST ENGINEERS AND EXECUTIVES



HEY! Gimme ANOTHER NETWORK! — I GOT CHARLIE M'CARNEY LEFT OVER!

Table of Contents Page One

25c a Copy — \$1.50 Yearly

•
An Electronic Fader

•
International
Broadcasting

•
Relaxation for the
Broadcast Engineer

•
Press Photo
Requirements

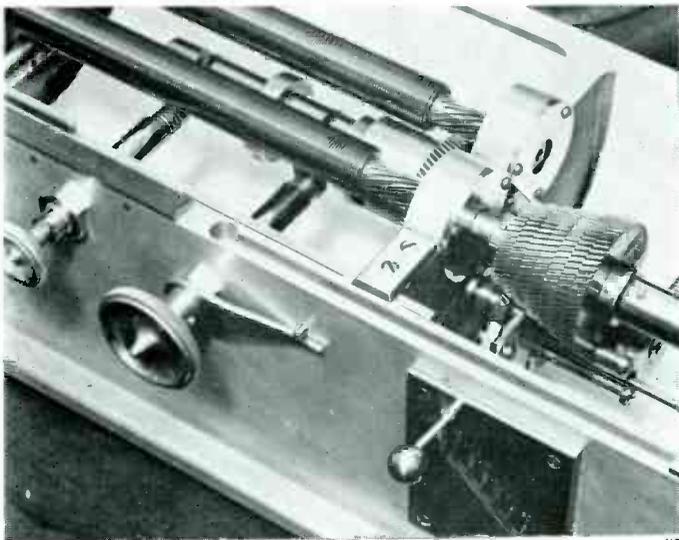
•
The New WMAL
Transmitter

•
Be Safety Conscious!

April

Volume 8, Number 4

1941



Inside the Recording Bed of a Scully Master Recorder

Your Recording Clients CAN Be Satisfied

Professional Recording Engineers Overwhelmingly **Prefer** SCULLY MASTER RECORDERS because of their undisputably superior performance—a Natural Result of Scully's Pioneering Work in the Recording Field extending over a **Score** of Years.

Scully's Proven and Earned Reputation is **Your ASSURANCE** that the recordings made on a Scully Master Recorder are the finest that human ingenuity and scientific development have yet devised . . . **AND . . .** that these superb recordings can be duplicated 24 HOURS A DAY!

Specify

for Ease of Operation
Dependability
Precision
AND Permanence



If you are seriously interested in Recording, we are in a position to show that, on a long time basis, the Scully Master Recorder is the most economical "Buy" in the industry—and absolutely cheaper than price-designed equipment. Write, phone, or visit—But

INVESTIGATE BEFORE YOU INVEST

SCULLY Machine Company

62 Walter Street

Bridgeport, Conn.

Telephone Bridgeport 5300

CAPPS*

SAPPHIRE is, and has always been, the only material for making cutting styli for high class recordings.

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

Imitated but not equalled

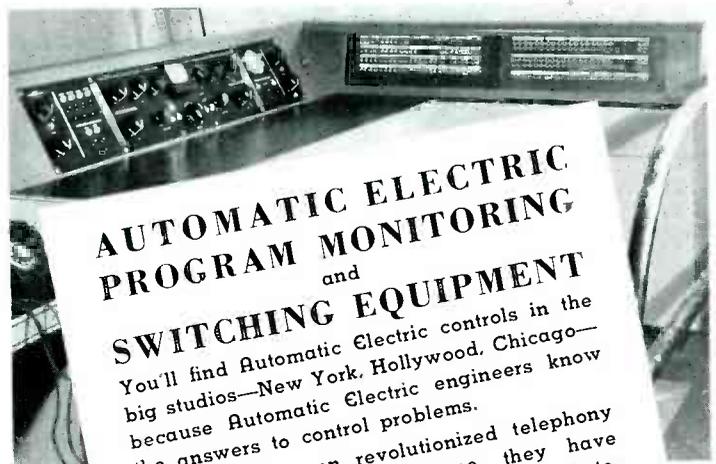
FRANK L. CAPPS

244 W. 49th STREET

NEW YORK CITY

Telephone Circle 6-5285

*Reg. U. S. Pat. Off.



AUTOMATIC ELECTRIC PROGRAM MONITORING and SWITCHING EQUIPMENT

You'll find Automatic Electric controls in the big studios—New York, Hollywood, Chicago—because Automatic Electric engineers know the answers to control problems.

Just as these men revolutionized telephony with the automatic telephone, they have simplified broadcasting by the use of Automatic Electric control apparatus.

For data on announcers' panels, monitoring and switching equipment, or on individual relays, keys, jacks, plugs, write: American Automatic Electric Sales Company, 1033 W. Van Buren St., Chicago, Ill.

AUTOMATIC ELECTRIC

Telephone, Signaling and Communication Products

TABLE OF CONTENTS

Volume 8, No. 4

409

April, 1941

	Page
An Electronic Fader.....	2
International Broadcasting — Telling the World.....	3
Relaxation for the Broadcast Engineer.....	6
Press Photo Requirements.....	10
Hollywood News	11
San Francisco News.....	13
The New WMAL Transmitter.....	14
Engineering Dinner Honors R. M. Morris.....	15
New York Engineering News.....	16
Be Safety Conscious!.....	18
Cleveland News	18
WOR - MBS News	19
Washington News	21
On the Airalto With Tom Gootee.....	22
Chicago News	24

A.T.E. Publications, Inc.

TRUSTEES

E. Stolzenberger	G. E. Stewart	G. M. Sellar
F. R. Rojas		R. W. Clark

ATE JOURNAL STAFF

Managing Editor.....	E. STOLZENBERGER
Coordinator.....	F. R. ROJAS
Press Photographer.....	JOE CONN
Circulation Manager.....	TED KRUSE
Subscription Department.....	H. GRELCK
Staff Assistants.....	H. GEIST, BOB WARD
Treasurer.....	C. W. PHELAN
Assistant Treasurer.....	D. J. MOLONEY

ASSOCIATE EDITORS

Chicago.....	T. E. GOOTEE
Cleveland.....	J. D. DISBROW
Denver.....	J. ROHRER
Engineering Chapter.....	R. A. ISBERG
Hollywood.....	RAY FERGUSON
KFI-KECA.....	H. M. McDONALD
Mutual Broadcasting.....	R. A. SCHLEGEL
New York.....	TED KRUSE
San Francisco.....	LEE KOLM
Schmectady.....	PAUL ADANTI
Washington.....	DORSON A. ULLMAN

The ATE Journal is a privately printed monthly publication, issued by the Ass'n of Technical Employees Publications, Inc., a corporation of the State of New Jersey with office at 30 Rockefeller Plaza, N. Y. City. Editor's office: E. Stolzenberger, 116-03 91st Avenue, Richmond Hill, L. I., N. Y.

Advertising rates and information supplied on request. Subscription, \$1.50 per year. Single copies, except Christmas Yearbook, 25c; Christmas Yearbook, 50c, subject to availability. All remittances in advance. Foreign: Add postage.

Nothing appearing in the ATE Journal shall be construed to be an expression of the ATE Journal, or the Association of Technical Employees, but must be construed as an individual expression of the author or authors.

"Rather than Quantity"



Refinements in design and painstaking care in construction are reflected in satisfactory performance.

ALLIED recorders and recording blanks are frankly created for those who seek ***QUALITY** rather than quantity.

** Based on the "records" of the country's leading recording engineers.*

ALLIED RECORDING PRODUCTS CO.

21-09 43rd Avenue • Long Island City • New York

International Broadcasting—Telling the World

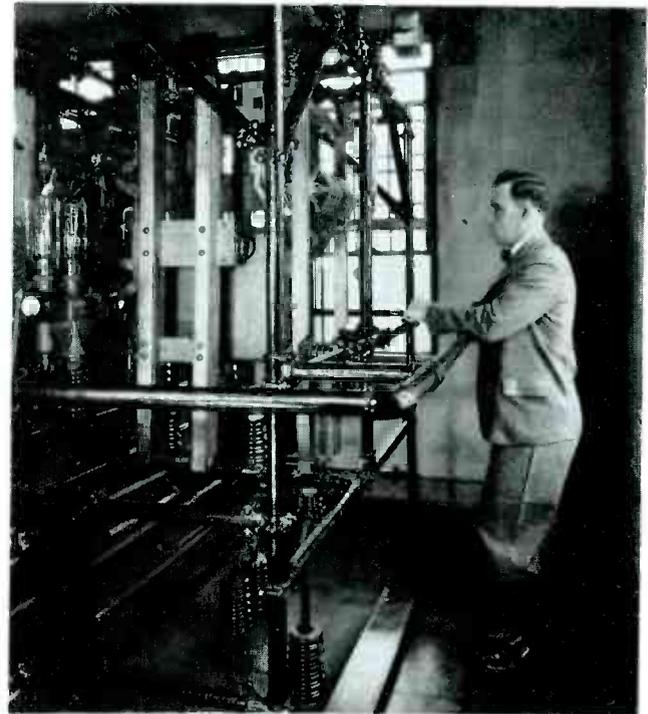
By Raymond F. Guy
NBC Radio Facilities Engineer

A GROWING horizon of steel towers and high wooden poles attests to the expanding international broadcasting operations of NBC stations WRCA-WNBI at Bound Brook, N. J. Programs in six different languages are transmitted from early morning until after midnight each day to Europe, Central America, Portuguese speaking South America and Spanish speaking South America. During most of this time two 50,000 watt transmitters are in operation simultaneously, serving different language areas. During one part of the evening two 50,000 watt transmitters are synchronized on 9670 kc to provide 100,000 watts. Half of this is directed to Central America on one beam antenna and the other half goes to a separate antenna which may be electrically steered to either the Portuguese or Spanish speaking sections of South America. The effective power on the steerable antenna, which is the transmitter power times the antenna power gain, is 1,200,000 watts. Towards Central America a rather broad beam is utilized because of the wider area to be served. In this case the effective power is 500,000 watts. Therefore, the effective power on 9670 kc during synchronized operation is 1,700,000 watts.

One of the problems presented to the Radio Facilities section in designing antennas and transmitters may be of interest. The layman loosely considers all South America to be Spanish speaking but such is not the case. Brazil is a Portuguese speaking country almost exclusively, which requires that programs be presented not only in Portuguese but also in the Portuguese dialect characteristic of Brazil. The remainder of South America speaks Spanish and in this case also care has been exercised in choosing announcers who speak the Spanish dialect characteristic of the South American countries involved. This language difference requires duplicate antenna facilities and provisions for quick changeover at various times of the day. In addition, antennas suitable for several optimum frequencies must be provided. Considerable care is exercised in selecting the optimum vertical angle of transmission. This angle is a function of the mean height of the antenna above the earth and is highest for the shorter paths. On the long jump to Rio or B. A. in the daytime the optimum angle appears to be roughly 10 or 12 degrees and for the shorter paths around 15 degrees. The antennas are designed to have a rather broad pattern in the vertical projection in order that apparent changes in the optimum angle will not seriously affect coverage. Over the South American areas the beams are 20 degrees wide where the field intensity is down 3 db. The Central American antenna provides somewhat more than twice as wide a beam to give proper distribution over a reasonable portion of the vast Caribbean

area. During the daytime programs are transmitted to Europe in English, German, French and Italian. In certain sections of Europe the news broadcasts from American short wave stations constitute the most important and truthful source of news available.

In order to accommodate the high voltages on the beam antennas, it has been necessary in some cases to increase the sizes of the conductors above the sizes formerly used for 25 kw. Otherwise, three foot streamers of pink flame



Top: Fig. 4 Bottom: Fig. 5

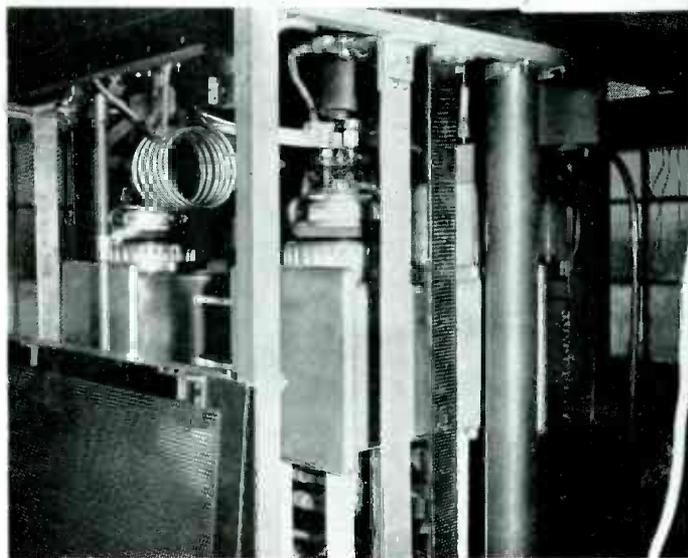
perpendicular to smooth sections of elevated antenna wires impress one with the fact that there is plenty of "oomph." This is not the most desirable way of being convinced but it leaves no doubt in an observer's mind.

Figure 1 shows one of the 50 kw power amplifier frames under construction.

Figure 2 shows a view of one of the completed power amplifiers looking diagonally into the front. This illustrates the "clean" design which is so necessary to make high powered, high frequency transmitters smooth and stable

in operation. Class B modulators are utilized to obtain the 40 kw of audio power necessary to completely modulate the stations.

Figure 3 shows the modulation transformers and reactors as they were delivered to the Bound Brook railroad siding. The end units are the modulation transformers and the center units are the reactors. The end units weigh 24,000 pounds each and the reactors not much less.



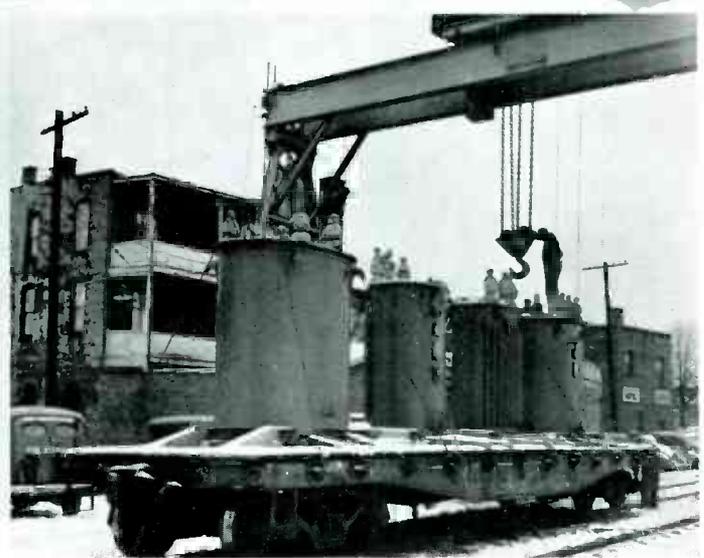
Top: Fig. 1. A 50 KW amplifier under construction
Bottom: Fig. 2. Completed 50 KW amplifier

The clean-cut appearance of this new 50 kw apparatus may be compared with figure 4 which shows the first short wave transmitter used at Bound Brook in 1925. By the standards of 1925 the unit shown in figure 4 was modern and efficient. The equipment consisted of a self excited Hartley oscillator.

Figure 5 shows one of the secrets of the streamline and compact design of the 50 kw power amplifiers of the modern equipment. It is an NBC built compressed air (200 pounds) neutralizing capacitor, one of which is

mounted adjacent to the water jacket on each side of the push-pull unit. These compressed air condensers are mounted inside of the PA tank circuit assembly with only the top connection projecting, as shown on figure 1. This makes possible extremely compact construction and the lowest possible bus reactance between circuit elements.

Approximately half of the present 54 acre plot is devoted to short wave antenna facilities. However, an agreement



Top: Fig. 6. A portion of the antenna facilities at Bound Brook
Bottom: Fig. 3. Modulation Transformers and Reactors being delivered to Bound Brook

has been reached with an adjoining owner for the procurement of an extra 16 acres for additional antennas now under construction. The radiating systems are so spread out over a large area that a single photograph could not show them all, but figure 6 shows a portion of the antenna facilities which illustrates the type of construction employed. Between the steel towers there is suspended a 9670 kc beam antenna with a power gain of 24 which may be directed from the transmitter by electrical remote control to either the Rio de Janeiro sector or the Buenos Aires sector of

South America. The antenna at the left, one end of which is supported on the steel tower, will operate on 15150 kc and 17780 kc to the Buenos Aires sector. It is possible to terminate these antennas to operate on two or more frequencies without the necessity for subsequent adjustments although this cannot be done efficiently, nor is it attempted, on a steerable antenna. A separate 15150-17780 kc unit is nearing completion for the Rio de Janeiro sector.

Another similar 9670 kc antenna not shown is directed towards Central America. A large "V" on 17780 kc is directed towards Europe. Another "V" unit not shown is directed to South America on 17780 kc and still another is directed to South America on 11890 kc. Still another antenna, some of which may be seen at the extreme left, is directed towards the Buenos Aires sector on 21630 kc.

Mr. Carl Dietsch has been assigned to the design and construction of these short wave facilities for many years and has supervised the construction of all of the transmitting and antenna facilities shown herein. Mr. William Duttera has collaborated with Mr. Dietsch from time to time in the electrical design and adjustment of the antenna systems. Mr. William McMillin and Mr. Paul Todd, also of the Radio Facilities Group, have aided Mr. Dietsch in supervising this work. Under their supervision there is a competent and experienced staff of riggers, mechanics and electricians who bring into being the facilities designed by the engineers. One project after another over a period of many years has resulted in almost continuous construction work being done on some portion of the elaborate international facilities with which NBC is playing a conspicuous part in expressing to foreign listeners the American Way.

National affairs of outstanding interest are frequently broadcast by short wave to Europe and Latin America, at times direct and at other times from recordings which make it possible to schedule the broadcast for the most favorable listening time. The wide difference in time among the various areas being served presents problems in distribution which occur only to a limited extent, if at all, in domestic broadcasting. Europe, so to speak, goes to bed at about 6:00 P. M. New York time since it is then 11:00 o'clock in London, 12:00 o'clock in Paris and 1:00 A. M. at points further east in the areas served.

Transmissions in the various languages require separate staffs of translators and announcers, each supervised by a section chief, representing the lower portions of an organization chart headed by Vice-President John F. Royal, who is in charge of international broadcasting activities.

It is interesting to compare 1941 international broadcasting with the first American network rebroadcast of a foreign program. It took place in 1925 and was accomplished by stations WJZ and WRC with the assistance of the facilities of RCA Communications. Station 5XX, London, transmitting on 1600 meters, was received at Belfast, Maine and relayed on approximately 60 meters to the writer at the RCA Research Laboratory in New York City. From there it was relayed to WJZ and WRC by wirelines. The transmissions were accompanied by so much static and interference that during an entire 20 minute broadcast there was less than one minute of intelligible music and speech. Nevertheless, in 1925, this was a miracle of radio which was featured on the front pages of newspapers from coast to coast. The smoothness and reliability with which international broadcasting is now accomplished was but a vague hope in 1925. But the humble beginning raised visions of greater things to come, many of them now accomplished.

SKINNER, COOK & BABCOCK
INCORPORATED
BUILDERS NEW YORK

Builders for the Radio and Television Industry

Typical Projects Handled by
Skinner, Cook & Babcock, Inc.
(Since 1924)

- Broadcasting station WCAF (1st unit) and erection of antenna towers, Bellmore, Long Island
- Broadcasting station WCAF (2nd unit), Bellmore
- Broadcasting station WCAF (3rd unit) and erection of antenna towers, Port Washington, Long Island
- Broadcasting station WJZ (1st unit), Bound Brook, New Jersey
- Broadcasting station WJZ (2nd unit), Bound Brook
- WJZ studio renovation, 33 West 42nd Street, New York
- Removal of old WJZ towers from roof of 33 West 42nd Street
- RCA Technical and Test Building, Van Cortlandt Park South, New York
- RCA receiving station, Belfast, Maine
- RCA tuning coil and mast foundations and anchors, Tuckerton, New Jersey
- RCA short wave station and cooling pond, Rocky Point, Long Island
- Foundations and erection of towers and masts, Rocky Point
- RCA community house addition, Rocky Point
- Additions and alterations, administration and development buildings, Rocky Point
- RCA receiving station and additions, Riverhead, Long Island
- RCA alterations, Bush Terminal, Brooklyn, N. Y.
- Mast erection, roof of 30 Broad Street, New York
- Mast erection, roof of 65 Beaver Street, New York
- Alterations, RCA Communications Building, 66 Broad Street, New York
- Erection of NBC television antenna on dome of Empire State Building, New York
- Design and erection of television relay tower, Hauppauge, Long Island
- WABC guyed tower erection and foundations, Mountain View, New Jersey
- American Radio News tower erection and foundations, Carlstadt, New Jersey
- WEVD mast erection and station alterations, Brooklyn, New York
- Research laboratory for Major Edwin H. Armstrong, Alpine, New Jersey
- F-m Tower (design and erection) Station W2XMN, Alpine

Let us discuss your
construction problems with you

Phone MU ray Hill 2 - 3156

Relaxation for the Broadcast Engineer

By A. D. Smith, Jr.

Television Engineer, National Broadcasting Company

THE smell of spring is in the air and the calendar agrees; so our thoughts turn seaward, or rather, "bayward"; and a glint comes into our eye as we think of the shiny new paint—green decks, white hull, red anti-fouling under water, and glistening brightwork—after days of work: scraping, sanding, puttying, and painting. Then the final check—name and numbers painted black, plugs in the bottom, stuffing box tightened, and down she goes—splash!—with us aboard having difficulty keeping our footing after seven months ashore.

The writer has a Richardson "Little Giant" trunk cabin cruiser, age six. The "Woned" is 24 feet overall, 7½-foot beam, and about 22 inches draft. She does about 12 knots top speed and about 8 or 9 knots cruising speed, powered by a Gray 440 engine, and sleeps five very comfortably, the oldest of the three young ones being just over five years old.

Contrary to general belief, a boat such as this is not very expensive to own or to run, providing the owner is willing and able to do at least a good week's work in the spring. One must also be able to ask for and to take advice, in view of the fact that certain kinds of paint, paint remover, etc., might hurt the boat, rather than help it. One cannot experiment, and the only way to find out what to use to fill the bottom seams which have opened slightly during the winter so that the boat will not sink about mid-summer, or immediately upon launching, is to ask someone who knows.

An idea of actual dollars might be of interest. Storage for the winter, which includes a canvas cover to help preserve the topsides, summer mooring, paint, varnish, paint remover, stuffing for the stuffing box, and all kinds of incidentals cost us a total of under \$57.00 each season. There is no registration beyond the initial registration of a new boat, and no captain's certificate is required. Certain equipment must be aboard boats of various sizes; but a new boat is usually sold with all equipment required by law, which includes such things as life preservers, running and riding lights, anchor, etc. Copies of pilot rules and other navigating information are also required; but having once been purchased, are always on hand.

Actual running costs for a boat such as ours are far below those of a car, when it is understood that boating is not a sport in which one picks a distant point to reach and holds one's foot down hard to get there. Suppose, for example, we have a four-day weekend and a choice of a car or a boat in which to spend the weekend. In either car or boat we travel for about ten hours a day. A boat (average modern cruiser under 30 ft. length) will consume about 1½ to 3 gallons of gasoline per hour. Think of



Capt. A. D. Smith, Jr.

a car, now. It runs 15 miles on a gallon, travels 50 miles per hour, averages 45 miles per hour, and ends up with a net fuel consumption of 3 gallons per hour. We might say for the car, as for the boat, a fuel consumption of about 1½ to 3 gallons per hour, on which a refund of the State tax may be obtained when the fuel is used in a boat. At the same time, it must be remembered that, in the case of the boat, we are not attempting to get to New Zealand in two days. We are just enjoying a four-day outing, seeing the sights, eating, relaxing, and getting a change. Compare the sight of a shore with houses surrounded by trees or a beautiful lawn, and the anticipation of what lies around the point or beyond that island ahead to the sight of a road with cars passing each other at 80 miles per hour. The latter means constant attention to driving, and little time to enjoy the farms or towns along the road or anticipation of what lies beyond the bend. Eating by boat is better than by

car, in that we do not take a chance on this, that or the other restaurant (usually guessing incorrectly or paying exorbitant prices for guessing correctly), but have home-cooked meals, with steaks, fresh vegetables, etc. The expense of eating by boat is much lower than by car, comparing favorably to eating at home versus continually eating out. We cannot relax while travelling by car. Attention must always be on driving—turning, slowing down, accelerating, or stopping for traffic lights. By boat, we start, set our speed at what we want for cruising, and settle down to enjoy ourselves. Even in narrow channels we can leave the wheel and go aft for a few minutes if we wish. Our course, once set, will vary but slowly, and there is no ditch or telegraph pole to smash into even if it does. Getting a change by car or by boat might also be discussed, but it must be remembered that days with varying weather conditions are, aboard ship, as different as are two roads by car. When travelling by boat we have our beds with us. When we get ready to heave-to for the night, we do. There is no looking and looking for suitable cabins or hotels, not knowing how clean or comfortable they will be when found, and there is no fee for sleeping. No earthly matter could compare with the peace and quiet of a night on the boat, the stars overhead, the gentle lapping of the water alongside, the lights ashore, and the slight swinging of the boat at her anchor, with real fresh air all around.

A guess at comparable running expenses by car and by boat would put the boat on the low side by something under half; and standing expenses would probably be somewhere near equal, considering car insurance and rapid depreciation, which does not take place in a good boat.

Last summer we packed up the whole family, which included the skipper, chief mate, assistant engineer, who was a 4½ year old girl, and the two cabin "boys," who were 6-month-old twin girls, and went cruising for what turned out to be 12 days. We had in mind a cruise up the Connecticut River to Hartford. For the accommodation of this "crowd" an extra berth had to be installed, which was easily accomplished by making a rectangular framework of oak and criss-

crossing small ropes on it. This made an upper berth having a certain amount of flexibility under the mattress, which consisted of the cushion from the back of one of the bunks. The whole thing, when hung, was sufficiently strong to support the skipper nicely, and it was comfortable, too. The older babe slept here, with the skipper underneath, the chief mate on the other bunk, and the twins in their baskets, one on top of the

starboard, and a similar upper bunk will have to be built over the port bunk this summer, inasmuch as the twins will be too old for baskets.

We had been looking, off and on, all summer for some kind of stove that would be more suitable than the stove which was on the boat. The only thing within our means and sufficiently small to fit in place of this stove that could be found was a second-hand gasoline stove

breakfast, made the twins' formula, and boiled enough water to just scald the 12 baby's bottles on 45 cents worth of fuel for the stove, which up to this time had been more than just satisfactory. The lack of speed, and thoughts of \$1.00 or more per day prompted us to weigh anchor after lunch and put back to port, where we invested \$2.00 in the aforementioned gasoline stove. The skipper spent the rest of the after-



Top Left: East River, N. Y., Friday, 9/13/40

Top Center: The "Wonedá". Since this picture was taken the entire cockpit has acquired a permanent roof

Top Right: Connecticut River, north of Middletown, Conn., 9/9/40

Middle Left: Jones Beach Obelisk, Friday, 9/13/40

Middle Center: Wethersfield, Conn., 9/9/40

Middle Right: Fire Island Light, 9/26/40

Bottom Left: The "Wonedá" at Hartford, Conn., 9/8/40

Bottom Center and Right: Scenes on Long Island after the 1938 hurricane

engine hatch, and one directly behind the wheel—all inside the cabin, of course. In the daytime, the twins were moved under the upper bunk, baskets and all, and when they were supposed to be sleeping we hung a blanket from the upper bunk down alongside each basket, so that we would not disturb them as we moved around. One of the pictures shows the arrangement through one of the windows. This was all to

covered with rust and priced at two dollars. Gasoline is known to be a terrific hazard aboard boats when located anywhere except in the gas tank, carburetor, or engine; so purchasing of a rusty gasoline camp stove for two dollars was considered too great a hazard. Therefore, we started our vacation cruise late one afternoon by simply running across the bay, anchoring, and getting organized. In the morning we cooked

noon, while the mate piloted us east along Great South Bay, cleaning and checking same. Needless to say, we took great pains to keep gasoline at all times were it would do good rather than harm, continually keeping half an eye on the fire extinguisher. About supper time we dropped anchor in Bellport Bay and ate supper cooked by the old boat stove except for the coffee, which we thought would be quite suitable for a trial of the

gasoline stove. After supper we set up the gasoline stove out in the cockpit, where it would be convenient to toss overboard (j.i.c.)*, lit it, and put the coffee on. Everything went well for about five minutes. Then, a loud "pop" and the stove went out. We had no coffee yet. After much babying and many more "pops," it was started again, and burned beautifully for another five minutes—just long enough to barely start the coffee percolating. Then, "pop," and it was out again. Well, about 45 minutes more of fooling with the stove finally convinced us that all it needed was some more gasoline. In our anxiety to be extremely careful with gasoline, having five persons aboard, two of them infants—we had overdone it. It simply needed a good filling, doing continual service thenceforward every day, all day, cooking breakfast, boiling barley flour for the babes' formula; boiling, not just scalding, twelve bottles daily; boiling diapers about every third day, heating water for dishes; cooking steaks, fresh vegetables; boiling potatoes—in short, making our stove problems as simple as at home and at least as efficient, because the stove used about one quart of white gasoline a day, or 5 cents worth. Compare this with the half day's use of the other stove on our first day out.

It might be noted that our mornings were pretty well taken up with details such as formula and baths for the babies, diapers, etc. Hence, our progress may seem slow, but, generally speaking, we travelled only in the afternoon. After passing through Moriches (L. I.) Bay, our third night out was spent on the east end of Shinnecock Bay, where we filled our icebox with ice, filled our water tank and drinking water jug, and also filled our gas tank, preparatory to starting across Little Peconic and Great Peconic Bays for Shelter Island the next day. Peconic Bays are well known for their excellent fishing, and they are both pretty deep in spots. Our fourth night was spent in Dering Harbor at Shelter Island (which we have jocularly named Swelter Island, having spent many an uncomfortably warm hour there) and, just after noon, having again gassed, watered and purchased supplies, we set out for Gardner's Bay, Plum Gut, and across the Sound for the mouth of the Connecticut River. All went well until about the time we arrived at Plum Gut and headed about northwest toward the mouth of the Connecticut River, when a thunder squall started making up dead ahead.

It got blacker and blacker, and we opened up our speed a couple of knots above our usual cruising speed so that

if we did get into it we would be nearer the mouth of the river. In cases such as this, it is always questionable whether to head back or proceed into a possible holocaust, but the Wonedra is a seaworthy craft and has lived through some pretty dirty weather, so one storm more or less would probably do no more harm than give us a good wetting and an anxious hour or two. As it turned out, it developed into a race between the storm and us, and the result was pretty much of a tie; because a heavy sea, brought on by a strong west wind, began bouncing us around a bit just twenty minutes before we got sufficiently under the protection of the mouth of the Connecticut River. At any rate, we made the river amid rain squalls and dropped anchor about two miles upstream between the railroad and automobile bridges which are a half mile apart, spanning the river at this point. The shore here is very rocky and steep, and we had to anchor about 50 feet out from shore, which is pretty close, as the depth was too great farther out and the river traffic quite heavy, consisting of tugboats, usually towing several barges loaded with gravel.

We spent some time prematurely congratulating ourselves on avoiding the worst of the storm outside the river, as it either turned around to get even with us or sent its big brother at about 10:30 p.m. It blew great guns, and the rain came down in sheets. The wind was from the northwest, driving diagonally toward shore, and somewhat of a sea began to cause a good deal of anxiety as to whether the anchor would hold or the cable part. The skipper's finger was mentally on the starter button, as the shore and rocks would be no more than a moment or so away, should something give. However, the storm, lightning and thunder, blew, flashed, and crashed themselves out shortly, and we slept serenely for the rest of the night.

The following evening we dropped anchor for the night a half hour or so north of Essex, where we had purchased supplies and a steak and fresh vegetables, which were positively superlatively delicious for dinner the following day. The next day's sailing took us to Hartford, where we found that we could not even buy gasoline, as the Yacht Club facilities were closed pending construction of some kind of dike; so we put back five miles to Wethersfield Cove, which is entered from the river by a narrow channel about 20 feet wide and 100 yards long. We actually ran under the branches of trees in this channel!

The cove is a beautiful harbor with a

fine yacht club and shopping facilities about ten minutes walk from the dock. It was Sunday evening and people were returning home after a day or weekend aboard their boats. There are many fine yachts in the cove. We inquired about ice as our icebox was starting to run a temperature, and two of the yachtsmen unloading at the dock told us that the stores were closed, but sent their sons back to their cruisers and both brought back what ice they had left in their iceboxes, as they were through with it, so we had more than an ample supply of second-hand ice for which they, of course, would not let us pay, but which surely worked as well as any which we bought brand new.

They also told us to take the mooring of a boat which was away, as the bottom was pretty sticky; and, although we carry a mudhook besides our regular anchor, they would trust nothing but a 500-ton mushroom anchor in such ooze. They had probably had enough experience to know. At any rate, we had no trouble with the mud on the bottom of Wethersfield Cove except on the way out the next day.

On the way in, we had spotted the Yacht Club diagonally across the cove and had headed for it. We were informed that we were very fortunate not to run aground, as the cove has good water only around the edges and that if we followed the edge on the way out we would have no trouble. We had had no trouble in the middle on the way in, but followed the edge (deeper part) on the way out and ran aground on a mud bank. Naturally, they knew what they were talking about, and we must have passed a brush on the wrong side, but the incident of the ice and mooring is a concrete example of the spirit of sheer good-fellowship existing between yachtsmen in the medium or lower income brackets. The chap with the big car is an ornery individual, too, generally speaking. Wethersfield is the site of a state prison, and we were very interested in, if not slightly concerned by, the walls of same no more than 150 yards from our mooring. One of the pictures we took shows the prison in the background and our mooring buoy in the foreground.

We made Essex again that night, traveling a good deal by compass and by the channel lights, and dropping our hook for the night at about 10:30 p.m. ten minutes north of Essex. The following day was rainy; so we stayed there relaxing and enjoying ourselves. The evening was beautifully clear and cool, but it rained the next day; so we de-

*just in case.—Eds.

layed starting again, simply making our former anchorage between the bridges, preparatory to heading into the Sound the following day. By this time, it should be fairly evident that cruising is not a matter of getting somewhere at a certain time. Our course was pretty indefinite, too, although we had originally planned to make Hartford and return, or maybe to go east toward Newport and the Thames River. As it turned out, we headed west on the Sound the following day, keeping in touch with the Connecticut shore, as the weather was overcast and rainy. Shortly after passing Faulkner Island and maybe two-thirds of the way toward Bridgeport from the mouth of the Connecticut River, we set a compass course diagonally across the Sound through fairly continual rain for Port Jefferson on the north shore of Long Island, allowing $1\frac{1}{2}$ knots easterly drift for the tide running out, and dropping anchor at Port Jefferson about 7 p.m.

It might be of interest to note that for the past four days we had been near WTIC and at breakfast time "Jean and Glen with Jake and Lena" with our toast were extremely welcome. In fact, we continued to listen to them for the rest of the trip, switching to WEAJ when WTIC became weak. Even now, whenever we hear them, we think of our trip to Hartford.

Our plan at this time was to turn back west after taking a look at the World's Fair from the water, as we did not want to tackle Hell Gate, New York Harbor and the Atlantic Ocean with the babes aboard. At any rate, that was what we told ourselves, knowing full well that we would. Port Washington was our next night's anchorage. On the way to Port Washington a northwest breeze started blowing, kicking up a sizeable sea on our side of the Sound, which we had to take abeam, causing us to roll considerably. The babes' supper time arrived, and the Mate proceeded to cook it, holding herself with one hand and a pot of cereal over the stove with the other hand. It was pretty rough going, but apparently did not make her hat an eye.

We spent about $1\frac{1}{2}$ hours over our tide tables and current diagrams that evening in an attempt to start at such a time the following day that we would have the tide with us to Hell Gate, have slack tide at Hell Gate and run again with the tide down the East River, inasmuch as throughout the whole run there is a strong current which could delay us several hours. As it turned out, we left Port Washington early and were not

aware of having to buck any current all the way to East Rockaway Inlet. The tide rush through Hell Gate is stupendous in a small boat, throwing great swirls of water up from underneath and tossing one about considerably. We took the channel on the west side of Randall's Island as the current would be stronger helping us there. We took a picture of Radio City as we were rushed past, and spent some time wondering if that tugboat which was following us down the Upper Bay could see us from such a height. What might be considered a small tugboat looks like the Queen Mary when it is bearing down on a 24-foot cruiser from astern.

The remainder of the trip was uneventful, passing Bay Ridge, Coney Island, out around the Rockaway Point Breakwater into the Atlantic Ocean, along the coast by compass to East Rockaway Inlet, which takes one in behind Long Beach, where we had lunch and a rest, and went on past Jones' Beach and back to Brightwaters.

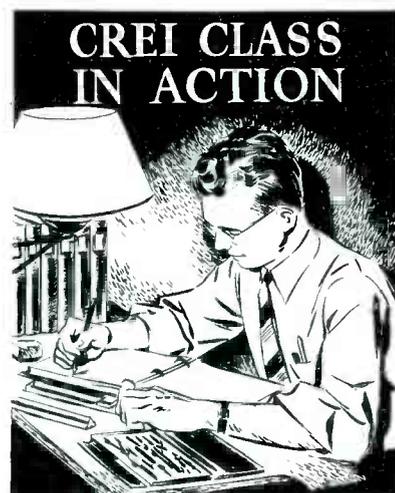
Our chief worry on this trip was the lack of any kind of dingy into which to toss the family if anything happened, but this is being remedied by the construction of a nine-foot Weldwood dingy, sufficiently broad to hold a half ton or so and to tow well, and was sufficiently light to be lifted on top of the cabin when necessary.

This summer we plan to repeat a trip which we took about five summers ago—up the Hudson, through the canals north of Troy and into Lake Champlain; north across Lake Champlain and down the Richelieu River, into the Saint Lawrence River, and west up the Saint Lawrence to Kingston, Ontario, where the St. Lawrence meets Lake Ontario and where we have some relatives. This is a beautiful cruise all the way and will take about twenty days for the whole trip, which is near 1,200 miles. There are 40 locks around rapids and falls in the various rivers, making a total of 80 locks for the round trip. On such a cruise our dingy (under construction now) is necessary, considering the possibility of straying into rapids, etc.

Lest it be mistakenly assumed that boating is all a path of roses, I have herewith reproduced some photographs taken three days after the hurricane of 1938, which night I spent on the boat pumping ship and seeing that she did not cast her moorings.

The season is here; so, to all you yachtsmen, prospective yachtsmen, and landlubbers, on behalf of the Mate, the three future "Skippers" and myself, "Peaceful Moorings."

To Serve Well
the Professional Radioman



Each CREI Student
Receives Individual, Personal
Service as a "Class of One"

Enrollment as a CREI student involves much more than subscribing to a series of printed lessons. Each student is assigned a personal instructor who carefully guides him through his studies; who promptly offers additional explanation when necessary and who carefully corrects and explains all errors in the written examination sent in for each lesson text.

This personal supervision, guidance and consultation enjoyed by each CREI student is but one of the important essential services extended to students of this institute. We feel that this personalized instruction is one of the reasons why CREI men are qualified to go after the better jobs and get them.

The success of an educational institution is not marked by dollars and cents . . . but by the achievements and results enjoyed by its graduates. CREI is interested in serious-minded professional radiomen who realize the value of a planned program of technical training . . . and we point with proof and pride to the more than 5,000 professional radiomen who are now enjoying the benefits of CREI training in Practical Radio Engineering.

These facts are important to you . . . and to EVERY MAN who is seeking a way to improve his position in the radio field. We will be pleased to send our booklet and pertinent facts on request.

"Since 1927"

**CAPITOL RADIO
ENGINEERING INSTITUTE**

E. H. RIETZKE, Pres.

Dept. AT-5, 3224 - 16th St. N. W., Wash., D. C.

Press Photo Requirements

By J. Wesley Conn

Television Engineer, National Broadcasting Company

AS WITH most hobbies, but especially that of amateur photography, the amateur measures his degree of skill by striving to match the work of professionals.

Another reason for this comparison is that in many contests and salons the amateur must compete on equal grounds with the professional. And certainly it is true if he ever hopes to get his work published in a commercial magazine or paper.

With this in mind, let's investigate the standards that professionals have set up to determine whether a picture is good from a publication standpoint. In judging a picture, two questions can be asked: first, "what is the story it tells?" and second, "how well will it tell the story when



A.T.C.'s President, Edward C. Horstman
Personality — Important A.T.C. person

News — A recent important telephone call

Action — Facial expression denotes a big "No!" coming up

For these reasons, this is a good press photograph

reproduced by the halftone printing process?" We can call the first quality "Material Value" and the second quality "Copy Value."

Let's talk about "Material Value" first. Under this heading there are three attributes a picture should have: 1. Importance of Person or objects shown; 2. News it portrays; and 3. Action portrayed. All three are equally important and should be given equal weight in judging. If we assign the value 100% for a picture perfect in all three, then each of the three qualities mentioned will have a rating of 33 1/3% if completely perfect in that particular quality. As an example, a shot of an important congressman breaking the traditional bottle over the bow of a new battleship would rate 33 1/3% in all departments, hence a 100% perfect picture from a news standpoint. It has importance of person; the news it portrays is important and the action is definitely there. A picture need not rate a full 100% to be considered worthy of publication, although

generally speaking, any picture which falls below 60% will not make the grade. Also, a picture may be entirely lacking in one of the qualities and still be a first class publication picture if it rates a full 66 2/3% for the other two qualities. A picture of a crashed airplane shows no action, but if its news and importance are sufficient, it would probably be front page stuff.

Having assigned a quantitative method of judging the picture, let's see how we can qualitatively arrive at the figures. Under 1 (Importance of Person or Objects shown) this will depend on the publication involved. A picture of President Horstman would not be of much interest to a large daily paper (as we go to press!) but to the A.T.E. Journal it is of great importance. Conversely, a picture of the president of the United States is definitely of value to the daily papers. For Item 2 (News it Portrays) this can be divided into four main sections, thus: 1. Survival . . . a basic emotion of human beings. Survival would include airplane crashes, flood, fire, war and other catastrophes threatening the survival of man. Strikes or better living conditions would also come under this heading. 2. Sex . . . romances divorces, babies, "leg pictures." (How about "Etchings"?—Ed. S.) 3. Ambition . . . pictures of successful men in any phase of endeavor whether it be sport, business, or war. 4. Escape . . . pictures of adventure, fun, glamour, backstage theatre or movie shots . . . all depicting means of escape from the routine of daily living.

When we come to Item 3 (Action Portrayed) . . . the most common is physical action, a batter striking a ball, for example. But this kind of action is not necessary. The human face unposed has action in it. Hence the success of "candid" shots. Emotion is action. Unusual camera angles cause action if they are not carried to the point of distortion. "Action" in a picture is what first catches the reader's interest.

Finally, the second of the questions which we called "Copy Value" . . . or how well the picture will tell the story when reproduced. This is a matter of technical perfection. Engraving or printing introduces a loss in any picture and one which is to be reproduced must have a surplus of detail to resist the loss it will encounter as a result of the halftone screening process. A picture for good reproduction should be made on glossy paper. It should have sharp focus, good detail and no blur. Good clarity of outline and a high contrast with plenty of shades of grey in between the black and white. The primary purpose of a photo is to show the subject at best advantage. For reproduction work, this means with as much detail as possible.

Even if the amateur photographer never submits a picture to a contest or for publication, an attempt to meet the professional requirements should result in a great improvement in his own pictures and a resulting sense of satisfaction to himself.

Hollywood News

By Ray Ferguson

HHEY, Gang, Spring is here! And rightly so. We, as well as the rest of the country, have had our share of winter. The snow was left up to Sun Valley and Arrowhead and the regions in the mountains, while Hollywood got the rain and high winds. We might even go further to add: and also the "high water." Well, lest too much mention of the past wet weather might send thoughts back to those unpleasant weeks, let us say it's time to hang those umbrellas on the line to dry and bolster our spirits with this sudden awakening of Mother Earth to blue skies and warm sunshine.

As this is written the Journal has not as yet arrived in Hollywood. We can only trust the issue, being devoted entirely to those in the amateur realm, will give the rest of us some insight as to who's who and what's going on in that vast field of endeavor.

Our Maintenance Supervisor, Frank Figgins, has written a very timely as well as interesting article for next month, "Microphone Problem Solved," for which we do give him a great deal of thanks, not only for the story, but for the fine results obtained in the solution of that problem; the fruits of which we are now so much enjoying.

In addition to all this, for the May A.T.E. Journal, Frank has gone even farther in his drawings which show the various perspectives one has of the two opposite coasts. We know you probably will feel as we have in that here, on the West coast, the East coast does seem about the same to us as the West coast does to you in New York. On careful observation of the clever drawings the whole thing seems too simple, when viewed right to left, or left to right.

* * *

Since the completion of the Golden Gate and San Francisco-Oakland Bay bridges, Don Thompson and Abbott Tessman must have felt there wasn't much left for them to do. Ever seeking bigger and more exciting things to surmount, the two chaps turned their eyes towards Hollywood. It was only natural, then, that very recently we found ourselves clutched in the strong grip of Don Thompson and, almost at the same time, heard the soft, pleasant voice of Abbott Tessman as they both arrived from San Francisco to make Hollywood their fu-

ture headquarters. We are sure those listening to Tessman's work on the air will be pleased with his pleasant style and nice voice.

Now, Don Thompson is a big man, too. Not only physically but in the way he does things. Hardly had he arrived but "Miv" Adams immediately had to make sure every last detail of his field equipment was in readiness (which it always is, anyhow). Only with Don in charge of Western Division Special Events, Field Engineering can expect a complete work-out at a moment's notice!

We want to include right here that, because of Don's having had to handle, in assisting engineers with heavy equipment, so much equipment in the past, he felt it only right and fitting to get a license. Which he did; and now with the proper recognition, you should know that when referring to him it should be always with pride and reverence. Don Thompson is listed as 'Phone, 3rd Class!

* * *

Ralph Denechaud, of the smooth wardrobe and strong pipes, was amazed recently on his Army show at March Field to learn he was a New York travelling mobile unit! Even with all the Flying Fortresses and gold braid, Ralph seemed calm and quite at ease. Then this information came along and it was almost too much for his four ND10 channels to handle. Later, someone explained because of New York covering Eastern Army camp shows, perhaps the New York boys were so enthused with their work March Field could also be taken in stride, too. Well, with proper adjustments made and Ralph told his car was still a vital part of Hollywood, even though his car has, or did have, New York plates, the Flying Fortresses continued to fly and the gold braid continued to shine just as brightly as ever.

* * *

While on the subject of aviation, Hollywood recently had pickups all over the industry here for the Defense for America broadcast. Vultee, North American, Douglas and United Air Craft were the centers of pickups. The idea was to show all steps of construction of the plane from blueprints to fly-away at assembly line. The boys on the various jobs got to see some of the new "secret stuff." But we aren't saying Denechaud, Norman, Capstaff and Joe Kay handled the sound at the different

points, with Joe having the pay-off of the show when the famous P-38 Lockheed interceptor almost flew straight through his hat! Paul Dumont, New York production, handled the producing part of the show, and one rather amusing incident occurred when, right after dress-rehearsal of four ships taking off, one of the pilots believed that part was actually the broadcast; so he just kept right on flying home and that was all. Wonder what he thought when he heard the show on the air? And, how come he wasn't there!

* * *

Got to talking with Mort Smith the other day and it seems as though Mort spent some of his earlier youth on the Atlantic round about 1917. At the time, Mort had all of his travelling expenses paid by the United States Government and then the rest was left simply up to the elements in the way of adventure.

One trip in particular Mort recalled was on the S.S. Medina. A ten thousand ton ship built for the Mallory Line. The Medina, with Mort aboard as Chief Radio, sailed one day from Newport News. The cargo wasn't what one could call a light shipment, for some of it consisted of 500 slabs of copper ore in the bottom holds, with steel rails on top of that laid tongue and groove. On top of the rails was piled ammunition and steam locomotives. There were also four sixteen-inch Naval rifles. Two stowed forward; two aft, with the whole lot making quite a cargo, all told. For good measure there were steel frames for more locomotives made fast to the decks with steel chains.

Armed with two five-inch Naval guns, manned with gun crews from the U.S.S. Texas, the Medina put to sea. Hatches battened down, and the radio crew from the U.S.S. Florida assigned to their tasks, the ships plowed up to New York and joined a convoy of ten ships where the convoy then sailed for Halifax to join more ships under the protection of a converted cruiser, which formerly had been one of the C.P.R. boats. Later at sea, the big convoy was picked up by the U.S.S. Detroit.

On the way across to the other side, with some of the convoy going to St. Nazier, France, the rest to ports in England, target practice was maintained by the gun crews constantly who fired at targets three to five hundred yards away.

Mort says they had dandy targets made out of wooden crates with three-foot sails that went bobbing along until blasted by the gun-crews.

Six hundred miles off the coast of France, U. S. destroyers came out and began herding the convoy. One hundred and fifty miles from the Medina's destination, the convoy split. Mort's ship was the only one going into St. Nazier, and a French destroyer took over from there. However, only one difficulty remained; that was getting by Belle Isle to St. Nazier. Now, Belle Isle was a haven for German submarines. The Island had a long sandy beach that ran out smooth and flat to sea and on this bottom the U-boats would sneak in and lay there and wait for what might come along.

The Medina was going to make the run at night and, just as she and the French destroyer got in close by Belle Isle, the Frenchman turned and signalled the Medina. This normally would have been all right had the Frenchman put his signal light straight up into the air; instead, he laid it full on the Medina, sent the message, and then left the Medina cold. So, there they were. Hard by Belle Isle; all alone, and only Mort's able fingers at the key to take care of

the rest. On top of all this, the seas started coming over the ship driven by a heavy gale. So the skipper just kept the ship going round and round in a big circle, with no one knowing what would happen next.

By three a.m., the storm had blown itself out. The moon had come out making it a clear, moonlit night, a natural target for any sub lurking under the shadows of Belle Isle. Finally the skipper said, "If we aren't sunk by this time, we never will be!" With these cheering words, the Medina was once again able to make headway towards St. Nazier, was picked up by the same French destroyer and reached port safely.

After six weeks of unloading cargo, the Medina once again headed for the open sea and, Belle Isle! As luck would have it, the sea was glassy calm. The skipper ordered full steam ahead and they started to make a run for it past the island. Not far away hovered two destroyers. Mort was on duty when suddenly and without any warning, the ship gave a tremendous lurch. Rushing on deck to see what was going on, Mort was just in time to see the flashing, white wake of a German torpedo just missing the ship. The man at the wheel had seen the torpedo in time enough to slam the ship hard-over for a perfect miss! And as the Medina steamed back on her course once again, the heavy, deep concussions of depth-charges from the two destroyers told the closing chapters of one exciting night off Belle Isle. Mort learned the destroyers had gotten the sub. And even with the ship later buffeted around by the same gale which blew the roof off the Halifax Railroad Station, even that failed to dim the excitement of that "close miss."

* * *

The other morning, on arriving at the studio for a very early call, we paused long enough by the Artist Entrance bulletin board to read the latest NBCCA Gun Club bulletin.

We read where seventeen members had paid their range fees, entitling them to all facilities and an associate membership in the Burbank American Legion Rifle Club. High scorers so far: Small-bore rifle, Frank Figgins (he's the shoot-inest man!); pistol, Stan Radom; skeet, Sam Hayes. The bulletin went on to say there is no target fee on weekdays or Saturdays, unless you require the services of a target boy on the two hundred-yard high-power course, or shoot skeet. This left us wondering if the target boy's job is anything like working in a howling alley. We mean, does the boy have to jump around and be as nimble on his

feet; or does he simply sweep up the pieces of shattered targets and let it go at that.

Also on the Artist Entrance bulletin board was a neatly typed note: "Lost—A silver ring with two diamonds, one diamond larger than the other. Finder please return to Phyllis Murphy, Press Department." We looked around, but failed to even get the slightest clue on the lost ring, and could only wish Phyllis luck her ring would be returned. Just outside the entrance one of the building maintenance men was completing his morning wash-down of the long walk next to the building, the watering of the English ivy, and getting the approach to the studio from the parking lot in first-class order for the day.

* * *

Having scanned the bulletin board and seen how clean and fresh the studio grounds are kept, just before the sun rises, we went on into the studio for the morning session of eastern rebroadcasts. Our first contact is always Frank Hicks, recording the early Chicago shows for rebroadcast on the coast. Frank has the kind of grin one enjoys seeing bright and early in the day. While on the subject of rebroadcasts, we are sure that should a popular vote be taken, all would be in favor of (1) monologue and dialogue levels on the Breakfast Club he kept up to the music levels at the point of origin, i.e., more balanced levels throughout the show; (2) eastern shows, those Hollywood records for rebroadcast, have more closing theme or even more pause before the NBC cue is given so we do not have to always be clipping closings, lest some of the eastern announcers' sign-off leak through, because Hollywood gives the NBC on all rebroadcasts and generally the eastern announcers overlap the various closings, which doesn't give the west such a smooth sign-off when the closing has to be clipped with the studio relay.

We pray that the above will be taken in good spirit and understanding. No cracks are intended, personally or otherwise. It is only when so many comments are heard in the rebroadcasting studio referring to that which we have just mentioned that bringing the matter to light might be of some help.

* * *

It looks as though our "Remember When?" section is going to be left out this month. We had to write this before the issue arrived with the first "Remember When?" gag, so perhaps the idea has to be still further developed, once the

(Continued on Page Twenty)

Write for Your Copy



The DAVEN catalog lists the most complete line of precision attenuators in the world; Ladder, "T" type, "Balanced H" and Potentiometer networks—both variable and fixed types—employed extensively in control positions of high quality program distribution system and as laboratory standards of attenuation.

Super DAVOHM resistors are precision type, wire-wound units of from 1% to 0.1% accuracy. More than 80 models of Laboratory Test Equipment are listed.

THE DAVEN COMPANY
158 SUMMIT STREET • NEWARK, N. J.

San Francisco News

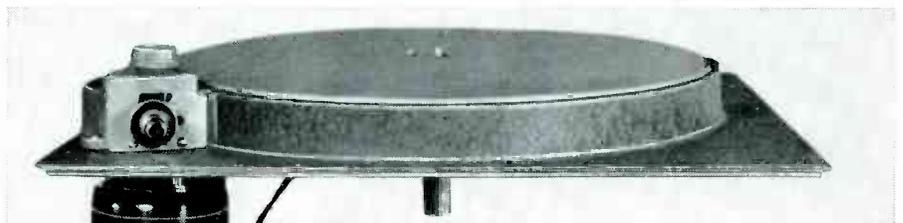
By Lee Kolm

NAMES IN THE NEWS . . . Robert Barnes and Mort Brewer of KPO have a co-operative arrangement for Spring gardening; first, Mort aids Bob in landscaping the Barnes home, then Mort enlists Bob's aid in the pruning of the Brewer fruit orchard. When Ernest Jefferson, FE, hears of this he'll surely make a deal with some of the boys to get a larger portion of Sutro Forest into a vegetable garden. Jeff's blitz on Sutro Forest has already provided fireplace wood for many of the boys . . . The vacation list has been completed and those first to go are O'Neil, Ref Redding, Williams, FE; Jacobs, SE; Case, KGO, and Brewer, KPO . . . The huge sign at Taylor and O'Farrell Streets, "CONSTRUCTION TO START IMMEDIATELY," will probably be commanded by Charlie Kilgore, CS, and moved to his building site on Belvedere Island in S. F. Bay . . . The new mailing address for Buddy Sugg will be "Pacific Ocean"; he's now on the Battleship California . . . With this fine Spring weather Henry Dunton has been readying his fishing gear and will soon be heading to the North for the elusive salmon and bass . . . Those fine pictures accompanying the motor-fader article in February Journal were the product of Warren Andresen's camera. His excellent recording photomicrographs are well-known to all A.T.E. Journal readers . . . Judging from the conversation one hears, Bev Palmer, CS, will soon be drilling a well on his San Carlos estate. Guy Cassidy's equipment and advice will be used freely . . . Latest addition to Walt Kellogg's, KPO, hobby shop is an Atlas high speed metal lathe . . . Art Dingle, KPO, has his garden planted and is now waiting for the usual bugs and worms to show up and start feeding . . . Kenneth Morrison, SE, leaves us to become sales manager of Graybar's research products division. We all wish him the best of luck . . . Frank Fullaway spent several weeks in San Francisco recently while the Destroyer Crosby had an overhaul in Mare Island Navy Yard . . . Imagine our surprise when it was revealed that "Shorty" Evans, KGO chief, has two race horses in training that may soon be seen on the tracks in this locality. Look for great things from the two-year-old,

"Salud's Memory" . . . George Irwin's photogenic four-year-old daughter is the rave of the KGO boys . . . George Greaves, FS, and Ed Callahan, FE, have completed a permanent cue transmitter layout on the 23rd floor . . . With the moving job completed, Alan O'Neil, Ref Redding, is now devoting his spare time to gardening at his new home. The backyard is about twenty-five by ten . . . Dick Parks, KGO, who flew for Pan-American on the South America route, has been brushing up on his studies preparing to again hold a commercial (transport) license . . . At this writing KGEI's new plant has reached the stage where the concrete is being poured for the tower bases and floor. Studios will be in SF's Fairmont Hotel . . . After completing an electrical job in the attic of his home, Ed Manning, KPO, started to climb down onto a step ladder. He missed the ladder and landed on the floor. Net

result was a broken ankle. To top off his misfortune, Ed fell from his crutches and rebroke the ankle, necessitating resetting and recasting. The cast technique, described in Life Magazine recently, has been used on his leg . . . Mort Brewer, KPO, reports a sizeable catch of rock fish off Pigeon Point recently . . . Senator Thomas Q. Watson, SE, was seen gathering bones for his dog at the conclusion of a recent A.T.E. dinner in the Olympic Hotel dining room. The Senator was caught off guard when the waitress asked if she could help him . . . Jim O'Laughlin has replaced Evan Richards as building maintenance at the KPO plant . . . Landscaping of his home has kept Bill McAulley, KPO, plenty busy. However, he still finds time to get on the air with his ham rig . . . Lee Kolm, SE, has still to show a profit on his poker games with Red Sanders, FE. Marked cards, maybe?

**THERE'S ALWAYS AN
EASY WAY TO
DO A JOB**



PRESTO 10-A TURNTABLE
Price, complete chassis
ready for use, \$140.00

● The Presto 10-A turntable proves the point. It has only 2 moving parts. . . A rubber-rimmed turntable, dynamically balanced, driven by a steel step-pulley on the motor shaft. A lever changes the speed instantly from 78 to 33½ RPM. It's the simplest drive mechanism of any table made . . . inexpensive, too . . . maintenance averages \$2.00 a year. As for performance, speed accuracy .4%, speed regulation .2%, vibration noises 50 db below zero level (.006W). Decide now to improve your transcription broadcasts. Replace your turntables with the new Presto 10-A. Catalog sheet on request.

PRESTO
RECORDING CORP.
242 WEST 55th ST. N.Y.

In Other Cities, Phone . . . ATLANTA, Jack. 4372 • BOSTON, Bel. 4510
CHICAGO, Har. 4240 • CLEVELAND, Me. 1565 • DALLAS, 37093 • DENVER,
Ch. 4277 • DETROIT, Univ. 1-0180 • HOLLYWOOD, Hil. 9133 • KANSAS
CITY, Vic. 4631 • MINNEAPOLIS, Atlantic 4216 • MONTREAL, Wel. 6967
PHILADELPHIA, Penny. 0542 • ROCHESTER, Cal. 5548 • SAN FRANCISCO,
Yu. 0231 • SEATTLE, Sen. 2560 • WASHINGTON, D. C., Shep. 4003

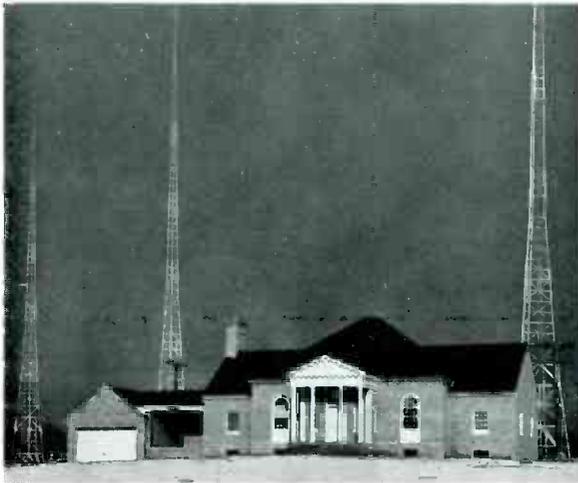
World's Largest Manufacturers of Instantaneous Sound Recording Equipment and Discs

The New WMAL Transmitter

By A. R. McGonegal

ON AUGUST 15, 1940, The Washington Star, owners of WMAL, started construction on a new transmitting plant for that station. On February 1, 1941, the National Broadcasting Co., lessees, assumed operation of the new plant, and on February 3, less than six months from the time construction was started, the first program was put on the air from the new location. This construction schedule was made possible by unceasing effort on the

WMAL's new plant, on Cedar Lane, Bethesda, Md., is located in a one-story brick building of Colonial Williamsburg design, located on a hundred-acre tract of cleared ground entirely surrounded by trees; and is about five miles west of the city's residential district. The building, in addition to the operating room, contains an office, combination living room and kitchen, workshop, storeroom, two-car garage, pump room and basement. Another large



(Photos Copyright by The Washington Star)

part of Capt. Charles A. Ruth, the Star's superintendent of construction; H. A. Wadsworth, WMAL station engineer, and A. E. Johnson, engineer-in-charge, both of NBC; and Stuart Bailey of Jansky and Bailey, consulting engineers.

room, opening off the operating room, is at present empty, being designed to provide for future expansion of the station. Ducts are installed throughout the building to permit future installation of air conditioning. Heating of the operating room is done by circulating the air from the air-cooled tubes in the transmitter by a blower system, the rest of the building being heated by an oil-burning boiler and hot-water radiators.

DO IT NOW

Don't Overlook This Excellent Buy!

You won't miss future issues of the A.T.E. Journal if you mail your check for \$1.50 to Subscription Dept., A.T.E. Journal, 30 Rockefeller Plaza, New York, N. Y., for an

Annual Subscription

Name

Address

Name

Address

Make checks payable to "A.T.E. Journal"

The transmitter is an RCA 5-DX, the latest streamlined job. Water-cooled tubes are entirely eliminated, the only rotating machinery being the blowers which circulate air around the final amplifier and modulator tubes. Two separate antenna phasing units, designed by Jansky and Bailey, and built by RCA, match the transmitter in appearance. All controls, both audio and radio, are centered on the control console. The audio equipment racks are finished to match the transmitter and include regular and spare program amplifiers, regular and spare monitoring amplifiers, audio oscillator and distortion meter, modulation and frequency monitors, antenna metering and phase monitors, an RCA AR77 receiver and cathode-ray oscillograph.

The four self-supporting towers are triangular in cross-section, 390 feet high and 38 feet on a side at the bottom. Tuning houses are built at the foot of each tower and connected with the transmitter by telephone. All transmission lines are 1½ inch concentric copper, and are filled with nitrogen.

WMAL, already twice a winner of the G. E. Plaque, has an excellent chance of repeating this year, having no lost time as yet in 1941.

New York Engineering News

By R. A. Isberg

Development Group

MR. W. A. R. Brown, formerly Assistant Development Engineer, has transferred to the RCA Frequency Bureau. Mr. Brown's work has been closely allied to that of the Frequency Bureau in that he has been engaged in research on magnetic storms and ultra high frequency propagation for many years.

Mr. George Nixon, who succeeds Mr. Brown as Assistant Development Engineer, has specialized in broadcast studio design and recording problems. One of his papers, "Operation of Automatic Audio Gain Control Amplifiers," appeared in the February issue of the A.T.E. Journal.

Lew Hathaway and Allen Walsh, the UHF and FM development men, were in Washington for the inaugura-



Chester A. Rackey, NBC Audio Facilities Engineer, proves herewith his prowess as a fisherman by bringing back samples of Large Mouth Black Bass. The larger one is 8½ pounds; the smaller, 1¾ pounds. Caught March 27th in upper St. John's River near Welaka, Florida. Mr. Rackey says the larger one is his record so far, and that it provided much excitement.

tion. It is reported that during the dress rehearsal of the program pickup points, Milne called for peaks from the various stations. When it came Walsh's turn, he came back with "Woof—60, Woof 70, Woof 100," in regular style even though his portable equipment was not equipped with a V.I. Milne was heard to comment, "Walsh's was the only P.U. which checked OK." Several other stories about the Washington trip are being withheld for later use as blackmail.

Shelby, Nixon and Lynn are recent fathers. Boys for the Lynns and Nixons and a girl for the Shelbys.

Television

Television still awaits the commercial g.a. from the FCC. In the meantime W2XBS is providing an average of three shows a week with varied programs of wrestling or boxing from Jamaica Arena and Madison Square Garden, baseball from Ebbetts Field and film and short studio shows from Radio City. During the winter, the various track meets and basketball games were televised from Madison Square Garden. Programs from the Garden are brought to Radio City via Telephone Company facilities, while other outside pickups are relayed by UHF.

Many of the programs are shown to special groups on the large screen at the New Yorker Theatre. The practicality of large screen television by the all-electronic RCA projection system has been very well demonstrated. The press representatives and a number of theatre executives were reported to be especially well impressed after viewing the Baer vs. Nova fight on the large screen.

Prior to the actual bout of Baer vs. Nova at the Garden, it was necessary to thoroughly check the system for saturation of whites, etc., so Charley Townsend was elected to enter the ring as a subject. First of all he was required to remove his shoes when he entered the ring. Next he was asked to take off his coat and vest to simulate the referee's white shirt which might "bloom" on the screen. The crowd thought this activity must be the beginning of a strip tease for their benefit, and before long they were stamping their feet in rhythm with "Take 'em off! Take 'em off!"

Color television is on the air over W2XBS on an average of four to six hours a week on an experimental basis. The rotating color wheel method is used and a number of receivers are so equipped for field use. Colors are on par with 16 mm home movies and possibilities for color television are indeed encouraging although there are many practical problems to be overcome.

Bob Clark has always been identified with bright and colorful ties. He happened to be the subject in front of the color television camera when Mr. Hanson, NBC Chief Engineer, came into the control booth. One look at the tie and OB gave a whoop of delight and demanded it for a present to send to a CBS Color Television apostle who had been kidded about his somber attire at the recent FCC hearings.

Ray Monfort and R. R. Davis have recently moved into new homes on Long Island. Ray had quite a time sloshing through the mud during the winter but adds that preparations are at last under way for the paving and landscaping. Stinky Davis's new address is the Nut House, 18 Squirrel

Hill Road. Harold See bought a lot in Plandome on the North Shore and soon will start construction of a house.

Wankel is considering playing his youngster's "Goof on the Roof" safety record to the boys lest any more of them do "humpty dumpty's." Davis injured his leg as a result of a fall about a year ago, and Baumann has just returned from the hospital after suffering concussions and abrasions of the face following an eleven-foot fall in conjunction with a reshingeling project.

Justus Allen of Empire State is on sick leave. Hope you recover soon, old man. Barker reported excellent fishing on the first day of the trout season. Barker never comes home empty handed. If trout won't bite, he can usually rely upon flounder. If that's n.g. there is always a can of sardines at the delicatessen.

Rod Chipp has been notified to report for active Naval duty. Pickard and Knight of Empire State are expecting their orders at any time.

Technical Services under Bill Clarke is at present supervising architectural construction of new studios at San Francisco, Chicago and the 6th and 7th floors, Radio City. Bill gives much of his attention to the solution of architectural problems and the keeping abreast of new developments in this field especially as regards new products that may affect broadcast studio construction. The problems relative to specifications, monthly report instructions procedure, cost studies and budgetary control are handled by Jim Wood.

Joe Arnone, able architectural construction supervisor, is at present in San Francisco and is all ready to go on the new studios now that the lease is signed.

Arnold Bacon, expert solver-fixer upper of all kinds of radio receiver problems and his sunny "disposish," have disposed successfully of many a difficult situation.

Pete Hause ably pilots the TS designers and together with Frank Opsal is doing his level best to keep abreast of circuit diagrams, field strength maps, panel layouts, television transmitters, etc. Pete and Frank have to keep at it steadily in order to keep up with the tide. In fact, pressure is great enough at times to require, on some of the less technical work, the assistance of the budding draftsman, Ed Prince, who besides his good work on budget reports shows definite promise as a potential designer.

H. Zimmerman (Zimmy to you), and Harry Olsen handle the business end of the TS stockroom and departmental ordering. They have their worries now, too, with defense priorities on material and nebulous delivery dates in general.

Al Henderson, recent addition to TS, has already grasped the lion's share of the budgetary control system intricacies besides assisting Ed Prince in the preparation of reports.

Audio Facilities

Three new studios in Chicago, and two new studios in New York, added recording facilities in Washington,



FOR RECORDING — Steel, lapped steel, stellite and sapphire needles, scientifically designed to satisfy the most exacting professional demands.

FOR PLAYBACK — Hi-fidelity filter-point, also transcription, sapphire and bent sapphire styles . . . famous for minimum wear on the record and low surface noise.

Write for samples and prices

DUOTONE COMPANY, Inc.
799 Broadway • New York City

Chicago, and Denver, plus a completely new building and facilities for San Francisco are keeping Mr. Rackey's Audio Facilities group exceedingly busy. Messrs. Arnone and Tom Phelan are collaborating on the San Francisco project, and Strang is at present in Chicago trying to keep Mr. Lutgens happy but will supervise San Francisco construction later. Fredendall and Mead will supervise and install the recording facilities and change over the Master Desk in Chicago. Jerry Hastings is hard at work with supervising the construction of studios 6A and 6B in Radio City, New York, in the heretofore unfinished sixth and seventh floor space. Don Castle will supervise the installation of more recording facilities in Washington. Bill Resides, just back from an equalizing job for affiliated stations throughout the South and Southwest, is preparing to depart for Denver where new RCA 73A High Fidelity Recorders will be installed and extensive modifications plus air conditioning will be installed in the plant spaces. Erick Berglund has just returned from an equalizing trip throughout the South-eastern network.

The following is a clipping from a movie column:—"Don Castle, because of his work in 'Power Dive,' not yet released, has been awarded the *juvenile lead* in Paramount's 'World Premiere.'" Don says he wouldn't mind trading salaries but objects to the juvenile reference.

Radio Facilities

The kilocycle maestros report that the NARBA fre-
(Continued on Page Nineteen)

Be Safety Conscious!

By the medium of this letter I wish to effect a revival and continuation of the NBC Safety program inaugurated in 1935 in connection with Engineering Notices No. 32 and No. 33. The re-edited Safety Manual, just as re-issued to you, should be completely re-read by all members of your staff until its intent is completely understood. It should be stressed to your staff that this is NOT AN ACTIVITY OF CASUAL INTEREST and that it is required of them that they be completely familiar with the rules plus the giving of their utmost cooperation to continually effect them.

The National Broadcasting Company has undertaken, at considerable expense and effort, every precaution known and practical, all in the interest of safeguarding every man in technical operations.

We have enjoyed an enviable record from a safety standpoint, which has been possible only with the full cooperation of all technical employees, and it is the company's desire to continue to maintain this record.

GEORGE McELRATH,
NBC Operations Engineer.

Cleveland News

By J. D. Disbrow

SPRING may be on the march in some localities but it is certainly marking time as this is being written here in Cleveland. Lake Erie ice fields extend several miles out in the lake, keeping the temperature with that winter touch.

Boating Activity

"Ice or no ice," says Jessie Francis, C.S., "I've started fitting out the cruiser." A new cabin is in the making together with a new motor for the "Silvron." Jess has decided to dock at Sandusky this season, the Ohio River is a good place for boating but a little too far away.

Lou West, who replaced "Hank" Gowing in the studios, is getting his fill of nemos but on top of that Lou spends many of his days-off tramping through the woods and park systems. W. R. Jerome, formerly vacation relief, joins the staff again this month. Jerry is a volunteer fireman in Bedford and is running his legs off fighting grass fires. W. C. "Barney" Pruitt, C.S., is having his usual tractor trouble again this spring. After practically rebuilding the critter during the winter he figured everything would be ready for the spring plowing but lack of parts is going to make the potato crop late this year. We understand his wife is glad to get the "darn thing" out of the kitchen. J. F. Hackett, S.E., learned some bird calls from Chief Green Tree at a Sportsman's Show pickup, so Jimmy is all set to teach his kids all about the birds and bees. H. B. Caskey, S.E., has always called his dog by rapping on the back porch with a stick. Harry says "this being the spring of the year the woodpeckers have the dog crazy." F. C. Everett, T.E., cancelled out on his paper boy recently. "Kewpie" can't see any reason for papers when the local newscasts are so complete and so frequent. A. H. Butler, Assistant Station Engineer, spends part of his spare time working with the local police department getting their police car rigged up for radio. Careful, Art, they don't snag you in the long run. A. M. McMahon, C.S., had a burst of speed added to his many duties on last Monday night, when he was called upon to push through thirty-five twelve inch platters at 78 RPM on the Met Audition Winners. Mac said the only trouble was that he couldn't find his pancake turner. The "Defense for America" program paid us two visits recently when part of a show was fed from Cleveland and practically a whole show from Akron on the story of rubber in National Defense. Ashworth, N.Y. F.E., came out to give us a hand with the rubber show. The rear of the machine gun range proved a suitable place to string a mike for machine gun sound pickup. It looks like a busy summer for the ND-10 boys as Cedar Point "the long haul nemo" has just been signed again for June, July, and August, three nights a week at 120 miles a night. A letter from Bidlack at Fort Knox, Kentucky, tells us he arrived safely and has been assigned to the 47th Signal Company. A "ham" schedule with W8FP on Thursday nights has been set up through W9ZZS so "Bid" can keep a closer contact with home.

ENGINEER AT WLW STATION KILLED

More Than 11,000 Volts Passed Through Body.

CORONER GIVES VERDICT

Victim Is Harold C. Stocker, Native of Iowa.

LEBANON, O., April 11—(Special)—Harold C. Stocker, 34, WLW transmitter engineer, was accidentally electrocuted in the world's largest transmitting plant at Mason at 1:30 p. m. Monday.

Warren County Coroner H. M. Williams said death was due to electrical shock from a high tension transformer, carrying between 11,000 and 12,000 volts.

After the WLW "sign off" Stocker and O. K. Snyder, both technical engineers, were preparing to move some transformers from a temporary set-up to a permanent position when the accident occurred. Under ordinary circumstances with the transformers devices that engage the transformer should not have happened, but the temporary set-up was not triple guarded.

Stocker was dead upon arrival at the office of Dr. Frank Basche, Mason, where a pumpkin, oxygen and heart stimulant failed to revive him. Coroner Williams said that Chief Engineer J. E. Whitehead has a two-man rule whereby no man is allowed in the transformer room alone.

This is the first death that has occurred at the transmitting plant from an electrical shock.

Stocker is survived by his widow, Leona, three-year-old daughter, Carol, both of Mason, and his father, W. H. Stocker, of Ottumwa, Iowa. Funeral services will be held in the W. H. Stocker Home in Ottumwa, Iowa, Monday morning and the

ELECTROCUTED

WLW Transmitter Operator Victim of Accident After Hours

Chicago, March 14—(Special)—Harold C. Stocker, 34, WLW transmitter engineer, was accidentally electrocuted in the world's largest transmitting plant at Mason at 1:30 p. m. Monday.

Warren County Coroner H. M. Williams said death was due to electrical shock from a high tension transformer, carrying between 11,000 and 12,000 volts.

After the WLW "sign off" Stocker and O. K. Snyder, both technical engineers, were preparing to move some transformers from a temporary set-up to a permanent position when the accident occurred. Under ordinary circumstances with the transformers devices that engage the transformer should not have happened, but the temporary set-up was not triple guarded.

Stocker was dead upon arrival at the office of Dr. Frank Basche, Mason, where a pumpkin, oxygen and heart stimulant failed to revive him. Coroner Williams said that Chief Engineer J. E. Whitehead has a two-man rule whereby no man is allowed in the transformer room alone.

This is the first death that has occurred at the transmitting plant from an electrical shock.

Stocker is survived by his widow, Leona, three-year-old daughter, Carol, both of Mason, and his father, W. H. Stocker, of Ottumwa, Iowa. Funeral services will be held in the W. H. Stocker Home in Ottumwa, Iowa, Monday morning and the

ENGINEER ELECTROCUTED

ENGINEER DIES; FINGER TOUCHES 4,400 VOLT WIRE

THINK IT OVER

WOR — MBS News

By R. A. Schlegel

Spring is here and everything is turning green as is the jewelry our bachelors gave their girl friends for Xmas . . . Very unusual weather for mid-April in New York, the temperature is in the 80's while Hollywood shivers with highs of 67. At present we could use a bit of that California dew or liquid sunshine . . .

The "emergency" and selective service is taking its toll of WOR engineers. The first to leave was Charlie Davidson, who was assigned to Fort Dix, New Jersey, where he is handling the PA system! . . . George Brazee, N.Y. studios, to Fort Dix and then to the South. Sam Morse gave a farewell party to Brazee where he was presented with a portable radio receiver as parting gift from the studio engineering group . . . Ray O'Neil, transmitter, and Lieutenant (jg) USNRF, ordered to active duty at the Brooklyn Navy Yard. Transmitter gang presented Ray with a watch as remembrance . . . Johnny Hayes, assistant to the program director, and Lieutenant in the Officers' Reserve Corps ordered to active duty with the Army's press department in Washington . . . Paul Reveal, MC night Supervisor and ex-leatherneck, (sea-going bellhop), nearly caught in the draft but escaped by a metatarsal . . .

Additions to "Proud Father" List — Alex Stanford, transmitter, whose wife presented him with a girl, their first. Alex is getting along as well as could be expected . . .

Add to harbingers of spring . . . Seven of the New York studio group have moved into new homes or apartments during April . . . Sam Morse to Flushing, Joe Craig to Westchester, Jack Byrne to Richmond Hill and Jim O'Connor to another apartment in Kew Gardens. Howard Donniez to larger quarters in West Orange, N. J. Hadden acquiring the status of property owner and taxpayer in the thriving community of West Orange. Giff Campbell moving to Chatham, N. J. . . . Barney Boyle is looking about for a new place to live. Should get one with a large lawn so that he can work off that spare tire he has tucked under his vest . . . Bill Ulrich still comparing tax rates and facilities the various suburban communities have to offer.

Jim O'Connor is the only optimistic ham here. He's been working on his 20 meter fone rig ever since he moved. Claims the transmitter picked up some bugs in the moving van . . .

Pat Miller graduated to a still larger camera, now using a 9 x 12 cm job . . .

Jim Carter opines that the new style women's blouses worn by the gals is very refreshing!

Recruiting for the 14th Infantry Regiment, N. Y. State Guard, planning the new summer home in the New Jersey Mountains and building a model railroad system is keeping Ray Lyon very busy.

The ACA is continuing its organization drive in New England with Pennsylvania scheduled to be next. At present (April) they are negotiating with WORC, Worcester, Mass., and WHOM, Jersey City, for contracts . . . N.Y. Local CBS ABT is signing up recording men at the independent recording companies. No wage scale announced as yet.

A.T.E. of WOR welcomes Cliff Foss, formerly with WLTH, Brooklyn, who is replacing George Brazee . . . Lester H. Gilbert, recently with the FCC monitoring station near Providence, R. I., and formerly Chief Engi-

MAINTENANCE MEN!

HERE'S YOUR COMPLETE
Source of Supply

★
WE MAINTAIN
LARGEST STOCKS
FASTEST DELIVERY
LOWEST PRICES

Tremendous Inventory of Standard Broadcast Equipment

AVAILABLE FOR PROMPT DELIVERY

- **Thordarson Transformers**
 - **Cornell-Dubilier Condensers**
 - **I.R.C. Resistors**
 - **R.C.A. Transmitting Tubes**
- etc., etc., etc., etc.**

In these times when factory production schedules are heavily burdened with defense orders and replacement or experimental parts are difficult to obtain from your regular source, why not try us? Here, on our three floors, we carry the greatest collection of standard radio equipment to be found in the East. SUN SERVICE is world-renowned for speed and reliance. Write us today on your requirements.

New York's Oldest Complete Radio Organization

SUN RADIO CO. 212 FULTON ST.
NEW YORK CITY
Phone: Barclay 7-7647

neer of WNBC, Binghamton, N. Y., and Bill Stahl from WNYC and ERPI. Last two additions to the staff are necessary due to the increasing amount of programs originating here due to our feeding the FM transmitter programs not on WOR or MBS . . .

Late flash! . . . MC reports that Bill Boher still pursuing the same hobby.

So it's J. Wesley Conn now. And we always thought the name was "Hey, Joe!"

And as one seed of grass said to another seed, "I want to be a lawn." G'bye now.

New York Engineering News

(Continued from Page Seventeen)

quency changes were effected at all of the stations with smoothness and dispatch.

Messrs. Duttera, Fitch and McMillin are finishing up the new WRC directional antenna and will be seen at their accustomed places in New York soon.

Carl Dietsch has completed the construction of the second 50 kw short wave transmitter and can now squirt an effective power of 1700 kw towards Central and South America by synchronizing two 50 kw transmitters on separate high gain antennas. How would you hams like to squirt 1,700,000 watts? A third 50 kw transmitter and a flock of new beam antennas are being built and NBC's international broadcasting is going places.

John Seibert is preparing for the installation of a 10 kw

(Continued on Page Twenty-one)

Halligan Elected Chairman of Chicago Chapter, V.W.O.A.

Over thirty members of the Chicago Chapter of the Veteran Wireless Operators Association attended a dinner at the Lake Shore Athletic Club in that city to discuss their part in national defense and to further the progress of the



Chapter. The retiring chairman, George I. Martin, of R.C.A. Institute, presented a life membership to the new chairman, W. J. Halligan, president of The Hallcrafters Company. Plans were formulated for future meetings to be held at regular intervals.

Book Review

How to Make Good Recordings, published by Audio Devices, Inc., 1600 Broadway, New York, N. Y., 128 pages, 5 $\frac{3}{8}$ by 8 inches, price, \$1.25.

This text is well illustrated, and supplies the non-technical data on the fundamentals of sound recording, and is written in an interesting, non-technical style. Over twelve pages are devoted to a glossary of recording terms. This little book covers the mechanics of recording, mike technique, acoustic treatment of the recording studio, and many practical tips for the professional. The beginner as well as the engineer will find his \$1.25 well invested in this book. —Ed. S.

Hollywood News

(Continued from Page Twelve)

populace sees the March Journal and gets the hang of the idea.

* * *

With the Easter holiday over, more and more out-of-state automobiles are daily arriving with the first breath of Spring. Beverly, Sunset, Hollywood and

165 MC 'Ceiling' for Newest FM/AM Receiver Development

THE experimentally inclined engineer or the ham who has developed an interest in FM and other u.h.f. services finds himself more or less on a spot so far as receiving equipment is concerned. He no more than gets set with the necessary equipment to cover the active range of frequencies, when along come new activities on still higher frequencies. Now, for instance, a great deal of experimental activity is being concentrated in the range of 158 to 162 mc. and there is every indication that this and adjacent lower ranges are going to find extensive commercial and broadcast applications.

For effective receiver operation at these frequencies there are many problems involved in the r.f. circuits. Tubes, antenna coupling, tuned circuit components, alignment, image selectivity, all involve complications of magnified proportions.

It is of interest that, to meet the demand for broadcast relay applications particularly, a receiver has been made commercially available which provides highly effective operation over the continuous range of 36 to 165 mc., including both FM and AM reception throughout this unusual range. At 160 mc. it offers sensitivity of 8 microvolts, for instance. This will be recognized as little short of spectacular at these frequencies, although low as compared with the accepted standards of communications equipment for the lower frequencies. But this sensitivity increases rapidly with decreasing frequency with the result that it becomes better than 1 microvolt up to about 50 mc., better than 2 microvolts to about 90 mc. and around 4 microvolts at 140 mc.

Sensitivity as such may or may not be a highly important consideration, depending largely on the type of application, but the above figures at least give

Wilshire Boulevards are dotted with the different colors and types of licenses in the hustle and bustle of traffic. It is always with a great feeling of pride to know what we have here is such an attraction to so many visitors. Karl Lorenz, on the other hand, wants to get away from it all. You see, this is the time of year the fish are biting. Any day now, Karl may take off for the mountains, rod and reel on one shoulder, his lunch-box on the other, his hatband full of trout flies, and his coat-tail blowing in the breeze.

some indication of the care put into the design of this Hallcrafters Model S-27B receiver.

I. F. Selectivity, when set in the "Sharp" position, ranges from 13 kc. at 2 times down, to 123 kc. at 1000X. In the "broad" position of the expanding system this becomes 58 kc. at 2X and 348 kc. at 1000X. The FM selectivity at the grid of the 1852 limiter tube is 218 kc. at 2 times down, providing more than ample "swing" to meet all established requirements. In the conventional FM broadcast range full limiter action is obtained on all signal inputs exceeding 5 microvolts.

Fifteen tubes are used in all, including the rectifier and voltage regulator tubes. All r.f. tubes are of the "acorn" type, operated at relatively low plate voltages for increased stability and life. The intermediate frequency is 5.25 mc., an 1852 and an 1853 are used in the two i.f. stages common to both FM and AM channels, the output of the latter feeding into an 1852-6H6 combination for FM and 6SK7-6H6 for AM.

The audio system, using push-pull 6V6's with generous negative feedback and a 6C8G phase inverter, provides flat response from 20 cycles to 2000 where an extremely gradual drop starts, reaching 3 db. down at 10,000 cycles. Bass boost of 12 db. is provided by switching. Outputs of 500 and 5000 ohms are provided.

An antenna trimmer control knob on the front panel compensates for the varying loading characteristics of the antenna system, to permit accurate maintenance of alignment in the three-gang tuning system. In addition there are separate antenna terminals for the highest of the three tuning ranges to provide for the more critical coupling considerations involved at these very high frequencies. The antennas are automatically switched by the band-switch.

Completely self-contained except for the loudspeaker, this receiver is of the communications type with the same flexibility of control and same operating features as receivers of this type designed for the lower frequencies. Its wide tuning range, special design features and provision for all types of FM, AM and even CW reception make it logically applicable to universal service in the ultra-high ranges, whether for broadcast, public, commercial, ham or general experimental purposes.

Washington News

By Dorson A. Ullman

WMAL—A grand piano has been installed in the spare transmitter room—all the comforts of home—all we need now is a good radio . . . Finishing touches are being applied to the building and a little landscaping has been done on the grounds. A railing has been installed in the transmitter room—to separate the sheep from the goats, no doubt. Speaking of sheep, NBC has decided to supply a lawnmower instead . . . Understand Charlie Fisher is much disappointed. He had a nice blue ribbon all ready to decorate his personal sheep . . . A large showcase has been installed in the operating room to display spare tubes and GE plaques. If it only had a cooling unit we could carry a side-line of cheese and hologna. Someone whispered that we possess a plentiful supply of the latter.

WRC—Tuning and proof of performance measurements are finished at last on WRC's new directional system. It started out as a three-element system and wound up as a five-element job. No one was more surprised than Bill Duttera, who designed it . . . Harold Yates has a new car—a Chevrolet this time. Only one new car to report from here this month; times must be getting hard again . . . Wally English is whittling little plugs by the hundred to plug the holes in that boat he bought last fall. Transmitter room looks like a country store with all the shavings on the floor . . . Barton Stahl is in Florida on the first vacation of the year. Sammy Newman is going next and will also vacation in Florida . . . Johnny Rogers is coming out from the studios to act as transmitter relief at both WRC and WMAL this summer.

SIGNS OF SPRING—Washington is infested with name bands and personalities at this season. Curtis Pierce brought his "Dr. I. Q." program to the Loew's Capitol to co-star with Horace Heidt. Local announcers are reported to have received 31 bucks apiece for the first job of a series; local A.T.E. members on duty in studio and field each received a bar of "Milky Way" (unsolicited advt.). Good old paragraph 5.17!! Tommy Dorsey is reported to be enroute to the Cherry Blossoms and Defense Headquarters. Horace Heidt, real people himself, seems at home in Washington . . . Chairman Powley participated in the first big intramural golf session of the season, upholding the dignity of our department by blasting comparatively few divots . . . John Hogan now squires Mary Anne around town in a brand new Olds club coupe . . . John Stetson shinnied up his ham mast recently to change from "zeppelin" to "plank steak absorption" antenna rig.

ITEMS—Don Cooper is rest-curing and temporarily ignoring operations supervisorship at Lake Worth, Florida . . . Keith Williams is changing from field super to control super during the first vacation period. Scalpers report a great demand for Thursday night peeping space . . . Much publicized transfer of debonair Bill Simmons to studio duty has now materialized—the ideal man-about-town has at last left the farm . . . The Close family is even now touring in New England. In an unguarded pre-vacation moment, Nick confessed that he was homesick for a sight and a smell of the Great White Way . . . Frank Fugazzi is groove-slappy these days . . . Leff McClelland, former newsreeler, found himself on familiar grounds when handling a recent Presidential trip . . . Local rumor has it that personal



Orders for national defense are slowing up deliveries from radio parts manufacturers. For your convenience, HARVEY is ordering "stock" supplies . . . so that you may have the product you want—WHEN you want it!

HAVE YOU A 1941 HARVEY CATALOG?

OUR *Best* VALUE IS OUR RECORD OF LOYAL SERVICE

HARVEY
Radio Company of New York

103 WEST 43rd STREET • NEW YORK, N. Y.

aggrandisement sometimes backfires—when studio speakers remain open.

GOOD WORK UNDER DIFFICULTIES: Bill Resides on the "Voice of Firestone" from a concrete auditorium in Miami through Washington; Mr. Stewart of WIOD on the Presidential cue fone at Ft. Lauderdale, Florida, when pick-up circuit to Washington failed; orchids and aspirin to Virginia Hawk of the local program office for interdepartmental detail work.

New York Engineering News

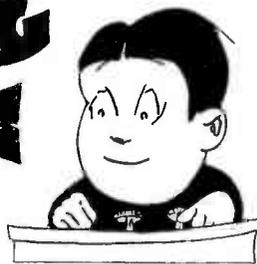
(Continued from Page Nineteen)

FM transmitter for W51NY in addition to his other duties of making better television transmission possible.

Paul Todd commutes between Empire State and Bound Brook assisting in television and international construction.

Messrs. Looney and Costello have been rebuilding the old WRC transmitter for a relay broadcast station and it is being installed at Port Washington for remote control from New York. With the U.H.F. Cue transmitter moved to Empire State Bldg., the New York Field group will be relieved from operating Cue channels. The Radio Group riggers are dismantling the old WEAJ towers and transferring equipment, with the result that the old WEAJ will soon be only a memory. Plans are being formulated for the construction of W63C, NBC's FM station for Chicago. Applications are also pending or being prepared for a new KPO antenna and a new 50 kw KGO transmitter.

RIDING GAIN



ON THE
AIRIALTO

WITH
TONGOOTÉE

THE Fibber McGee show from Hollywood often assumes the aspects of a circus during rehearsals. A few weeks ago Conductor Billy Mills pulled the "dead mike" stunt on Engineer Paul Green—who claims he wasn't fooled at all, or at least not very much. Two minutes before air time Billy Mills raised his baton, gave the orchestra the downbeat, and the musicians started to play—or it *seemed* that they were playing. Fiddles were fiddling, and trumpets, trombones and saxes were energetically puffing and blowing—but no sound was heard in the control room! The orchestra was careful not to make a sound—and the engineer frantically twisted dials and tore his hair, until he discovered the hoax. Then a week later Comedian Bill Thompson celebrated April Fool's Day by inserting small explosive caps between occasional sheets of music in the orchestra's library; the minor explosions that resulted during the first rehearsal sounded like an artillery barrage in the control room!

* * *

The nearly completed Don Lee Television station,

**Prompt, Intelligent Service on Any
Radio Part, Receiver, or Problem**

TECHNICAL EQUIPMENT COMPANY

Telephone:
WOrth 2-1895

135 Liberty Street
New York, N. Y.

FURNITURE

By special arrangement with many of the leading Furniture Manufacturers and Distributors, furniture of ALL kinds may be bought thru us at near factory cost by obtaining our signed order. Terms arranged.

GOODRICH TIRES

Batteries and tubes can be purchased on our signed order at CONFIDENTIAL DEALER PRICES. No charge for mounting.

KEECH SERVICE

170 BROADWAY

Phone LExington 2-1100 (Twenty-four Hours a Day)

W6XAO, atop Mt. Lee, near Hollywood, was atmospherically christened with lightning a few weeks ago during a heavy California Mist. An emphatic bolt struck the 300 foot steel antenna, ran down the lead-in and was dissipated in the copper roofing. Although the seven engineers on duty inside the building were a little scared, on one was hurt and the equipment suffered no damage. Despite the alleged infrequency of such weather around Hollywood, several lightning arrestors have since been installed "just in case."

* * *

Durward Kirby, of Club Matinee fame, has his own one-hour program every night from Chicago. It might better be titled a local clambake, for Mr. Kirby delights in trying all manner of gags on his listening public. It's a solo affair—except for the engineer and platter spinner—but Durward makes up for the lack of other talent by bringing in his own characterizations of the venerable Charlie Hostedder, Sloppy Mike, and others. Then, to keep the engineer amused, he interviews the double-talking Alonzo McToosh—a 33 1/3 voice transcription spinning confusingly at 78 r.p.m., an effect simulating Donald Duck. Other stunts pulled by Kirby include playing 33 1/3 transcriptions of dance music at 78 r.p.m.—which he calls his "Agitated Tempo"; and also playing 78 records at the reduced speed of 33 1/3 r.p.m.—which he terms his "Take-It-Easy Tempo."

Announcer Kirby hails from Kentucky, by way of Indiana. And despite all his stooging with Ransom Sherman on Club Matinee, he really has a good singing voice—left over from his first days in radio with WBAA, in Indiana. He is one of the tallest Chicago announcers, measuring some miscellaneous six feet and four inches in a vertical position.

* * *

That new radio set you may be planning to buy next fall will not only cost more than in previous years, but will have many metal substitutes. Radio set manufacturers are swamped with Federal priority orders, and new models for the public will be out of the question for many months to come. Another headache for the larger companies is a source for metals, such as aluminum, steel and tin. The shortage of aluminum—vitaly necessary in the construction of tuning condensers, electrolytic cans, etc.—promises to be very acute by early fall, and substitutes can be expected in all home receivers built after this spring.

Large users of acetate platters have already felt the pinch of the aluminum shortage. Not a few recording companies and broadcast stations are carefully saving old used discs, to be stripped of acetate and re-surfaced. Commercial blank manufacturers have made a strong appeal to the priorities board of the Office of Production Management of the Government, requesting that sufficient quantities of aluminum be released for commercial use of the

radio, phonograph and motion picture industries. No provision will be made by the OPM for aluminum for home recorders.

William Robinson, engineer with WIP in Philadelphia, has developed a process for coating cardboard discs which may help to solve the acute aluminum problem. He claims to have had good success with blanks consisting only of processed cardboard, coated several times with a special acetate compound. Whether or not such a material change is commercially successful, a substitute *will eventually be found* for bauxite and alumina—now two very precious metals.

* * *

Kansas City's eight broadcast stations ended a decade-long competitive feud late in March with a co-operative program participated in and broadcast by all eight stations. The three hour program and pageant was produced to acquaint KC's radio set owners with the reallocation of frequencies.

* * *

One of the minor provisions of the Havana Reallocation Agreement concerned the long-tolerated Mexican border stations—with antennas directional toward this country—which would either be eliminated, or required to operate on a fixed frequency *without spread* instead of occasionally wandering up and down the frequency spectrum. However, a last minute decision of the Mexican government now permits their operation in much the same way as before the Reallocation—with the usual effective 30 or 40 kilocycle "spread" into adjacent broadcast channels. The Baker station XENT remains at its old dial spot with 50,000 watts; the Carr Collins "Crazy Water Crystals" station XEAW is now on 1570 kc with 100,000 watts; and the old Brinkley station XERA operates on 800 kc with *unlimited* power.

Just a week before the alleged Mexican "reallocation," Dr. John R. Brinkley admitted to a Little Rock, Arkansas, court that he was practically bankrupt—following damage suits against him by a number of his client patients. Not much remains of the \$150,000 he took with him to Texas back in 1932—after the FRC closed his Milford, Kansas, radio station for airing medical advice indiscriminately. So perhaps his present station, XERA—once more infamously known as XER—across the border from Del Rio, Texas, will soon be closed and relegated to a silence it justly deserves.

* * *

The Ralston "Tom Mix" program on the networks from Chicago is a rootin', tootin', wild-west opery—with plenty of fire and brimstone. The sound men like to work the show because for once they can make all the noise they want. Comes a need in the script for off-stage pistol shots, and Producer Ted MacMurray throws the necessary cue. Whereupon the sound man opens the exit door from Studio C, pokes the pistol out into the hallway, and fires several blanks into the air. Unfortunately the passageway is rather well traveled, and the results are often surprising. One day six musicians were scared speechless by the unexpected gunplay, and on another occasion Announcer Charlie Lyon dropped an armful of scripts through absolute fear. Sometimes passersby are heard to make some very strange remarks which, fortunately, are seldom picked up in the cast mike. Back in the control room Engineer Ray Bierman and the producer have a daily bet as to how many people will be passing through the hallway when the explosions take place.

We met the highest salaried Network Salesman that we have ever seen the other night in the Radio City lobby. It was inspiring to meet an individual who commanded such a high salary. Unfortunately he was temporarily out of employment, however, since his salary got so high he couldn't find anyone who would pay it!

* * *

Ten Years Ago in Broadcasting. The Boswell Sisters Trio, newly arrived in New York from California, were making a national success of their first network appearances over NBC. Columbia was wowing audiences with an astrology program conducted by Evangeline Adams. And in May of 1931 "Roxy and His Gang" made their last NBC broadcast—ending almost a decade of continuous programs under the direction of S. L. Rothafel, or "Roxy." A few of the artists associated with him then were Madame Schumann-Heink, Frank Moulan, Harold Van Duzee, Viola Philo and Josef Stopak.

* * *

Twenty Years Ago in Radio. Broadcasting stations were very few and far between back in the summer of 1921, and radio listeners were content to hear mainly coastal and ship stations—many of which operated within what is now the Broadcast Band—or to varieties of static. Vacuum tubes were available for the first time to the public at "popular" prices; the No. 200 detector selling for \$7.00, the No. 201 amplifier at \$8.00, and the No. 202 five watt transmitting tubes at \$13.00 apiece. The first commercial loudspeakers—of the "horn" type, and not very loud—were selling for about \$25.00 apiece, but most radio listeners preferred to use the customary head-phones. Those were the days!

Courmettes & Gaul OPTICIANS

55 West 49th Street
R. C. A. Building, New York
Main Floor

EYE EXAMINATIONS

Prescriptions Filled . . . Prompt Repair Work

PATERSON:
79 Bridge Street

NEW BRUNSWICK:
54 Albany Street

AARON LIPPMAN & CO.

246 Central Avenue

Newark, N. J.

Leading Radio Equipment Distributor of New Jersey
Prompt Service at No Extra Cost

Chicago News

By "Con" Conrad

SEVERAL contacts with F. C. Shidel at Ft. Monmouth, N. J., via Ham Bands reveal that Fred likes the Army life for a change and is enjoying the Eastern Seaboard weather . . . V. D. Mills, Control, cleaning things up around that new house of his, Vern is about as proud of that new home as many a father is of the first born . . . Incidentally, Vern has just completed eleven years with NBC . . . J. H. Platz, Control, also of the new house boys, is watching construction, which to him is much too slow . . . All the boys around Chicago sporting winter sun tans, derived from the sun lamp in the Engineers' Room . . . Next time you see D. J. Kempkes, S.E., ask him about the girl at the Selective Service Board. She almost didn't do right by our Dave . . . And another thing, Dave, don't try to pull any fast ones again before the physical examiner . . . (seems that fellow just ahead of Dave was suffering from F.F. and the next one had one leg about two inches longer than the other, by the time Doc got around to Dave he was in no mood for fooling) . . . As this appears many of the boys will have just returned from their vacations and will have much to tell, about all the sights, the many hundreds of feet of film wasted, etc. . . . More about that in forthcoming issues . . . Minor Wilson off to Texas and the Southlands again this year . . . He has already returned and is ready for the next jaunt . . . Division Engineer H. C. Lutgens very happy about the new studios and all here at Chicago . . . Geo. Maher, S.E., happy to see that the winter has finally passed—had all three of his boys ill at the same time. George put in a very hard winter, right now he has longings for that Arkansas Plantation. John Martin, Maint . . . Passed us some very interesting queries and we are putting them on to you for your edification . . . Did you ever hear of using a shovel to get a program out of the mud? . . . Blaming the laundry for a quick fade? . . . Feeding a Round Robin? . . . Using blanks for trouble shooting? . . . Is there any royalty in lug counts? . . . By Spiers, S.E., getting all in readiness for Spring planting and weed control on that West Chicago farm of his . . . W. T. Knight (Bill) now sports a "Dr." before his name—Good Luck, Bill . . . 'Tis rumored that J. R. Miller, Control, is seeking the post of a chaplain with the armed forces . . . That is, in the event of a serious emergency . . . H. F. Abfalter, S.E., still contemplating making the fatal leap into matrimony—he can't decide, what with increasing income taxes, army life and all staring him in the face . . . Ray Bierman, S.E., should have that Ham rig of his working by now. Note that Ray is very unhappy. He moved way out to Clarendon Hills to get away from BCL troubles and now finds that instead of his being the only house on the block, the entire street is built up solid . . . Russ Sturgis, Control, can't take suburban life. He has moved back close to Chicago . . . Chicago's busiest man is E. C. Horstman, Control, Chairman of Local A.T.E. and National President of A.T.E. We would like to give you a brief glimpse into the President's daily routine. When Ed is working nights this would represent an average day. To bed at 3:00 a.m., up at 9:00 a.m. A quick breakfast and off to the A.T.E. Office arriving about 10:30 or 11:00 a.m., Ed then spends from one to three hours reading the mail that has arrived. From this he must sort out that which requires an immediate answer, deter-

mine the answer. Some time must be spent on releasing the News Letter. Another point which requires a great deal of the President's time is checking interpretations of the Agreement, this requiring delicate handling in order to arrive at conclusions which are well within the bounds of A.T.E. thought. Incidentally, we forgot to mention that Ed rarely ever takes a lunch period, and just about the time he feels he can relax for a few minutes he notices that it is getting time to get over to NBC and put in his daily hours there. Outside of that Ed finds a lot of time to call his own. Oh, yeah? If you think that job of being President of our organization is a snap, you have several thoughts coming, my boy. With all the above Ed has to put up with one George Maher, the National Secretary-Treasurer, and that is a job within itself (No hard feelings, George) . . . Larry Dutton, S.E., still one of the best bowlers at NBC. Larry can keggel the boys right off their feet. We would like to get the secret from Larry as he only tips the scales at about one hundred and ten. Which must prove it isn't how hard you heave that sixteen pounds . . . Tom Gootee, S.E., has that brain of his working overtime planning some additional interesting articles for the A.T.E. Journal . . . Shortly after this appears, Hal Jackson, S.E., will be passing around the cigars for the third time. Congratulations, Hal . . . E. A. MacCornack, S.E., very proud of that new Buick and is planning to put it under the most severe of road tests on this year's vacation . . . Haven't been able to get much news out of the boys at the Transmitters, I guess we will have to make a trip out there to get all the dope . . . Curt Pierce, F.E., still doing quite a bit of traveling with the Dr. I. Q. Show. Curt has high hopes of settling down one of these days, and spending at least a week in Chicago out of each year . . . With that we just about wind up the news from Chicago for this time, a parting reminder to say that we shall be seeing you boys in New York and Washington as this appears in print.

We cut our news a bit short to bring you this item from the Social Security Board which we believe bears some investigation.

Wage records for 1937 are important to the worker in 1941.

There is a clause in the Social Security Act which is important for workers to note during 1941. This clause states that at the end of the fourth year, following any year in which wages were paid or alleged to have been paid, the Board's records for such an individual and the periods of payment are conclusive . . .

What does this mean in 1941?

It means that with respect to the time and amount of wage payments made in 1937, wage earners have four full years, up to and including December 31, 1941, within which to correct any entry made on the Social Security Board Records. Workers who are not sure of the accuracy of their records for 1937 are therefore advised to check with the records of the Board in Washington, D. C.; any worker can secure a report from the Social Security Board by filling Form OAR-7004, which may be obtained from any Board office.

The Board further suggests that each worker keep an accurate record of his payments in a safe place, as this may prove quite valuable when claims are presented.

Radio's Most Sensational "Buy"



Meissner FREQUENCY MODULATION RECEIVER

LIST
PRICE
\$99.25

34⁹⁵
NET

COMPLETE
WITH
TUBES

For a short time only — until our limited stock is exhausted, Terminal Radio Corp. offers this almost unbelievable value! Here is an opportunity for everyone to enjoy the remarkable performance of F-M at a price everyone can afford. This quality receiver unquestionably provides the maximum in staticless, crystal clear F-M reception available today!

CHECK THESE OUTSTANDING FEATURES:

✓ 12 Tubes ✓ Voltage Regulator ✓ Dual Shadow Tuning Indicator ✓ High Gain RF Stage ✓ High Fidelity Audio ✓ 6 Watts Power Output ✓ Five position Tone Control ✓ High Fidelity P.M. Speaker ✓ Adaptable as "Converter" ✓ 3 Stage IF Amplifier ✓ Beautiful Walnut Cabinet.

For You to See and Hear! On Demonstration at Both Stores

TERMINAL RADIO

CORPORATION

68 W. 45th Street • 8 Cortlandt Street

Both Stores Open Evenings Until 8 P. M.

NEW YORK CITY

Telephone: VAnderson 6-5050



NEW FM/AM TUNES TO 165 MC COVERS FM RELAY FREQUENCIES

HALLICRAFTERS Model S-27B tube FM/AM Communications tuner operates on 3 bands: 36 to 60 mc; 56 to 91 mc; 94 to 165 mc. Changes from FM to AM with the bandswitch. RF amplifier Acorn Tubes. High gain oscillator are high frequency Acorn Tubes. Push-pull high fidelity audio amplifier uses beam power tubes. Controls are: RF gain; bandswitch; antenna trimmer; IF selectivity control; volume control; beat oscillator pitch control; tone control with bass boost position; S-meter and Vernier Tuning Scale; AVC on-off Switch; standby switch; phone jack; 110 volt 50-60 cycle AC modulation operation switch; 110 to 250 Volts. Price (Available for 25 to 133 cycles; 110 to 250 Volts. Price upon application) Model S-27B with tubes, \$195.

MODEL S-31-A HIGH FIDELITY AMPLIFIER

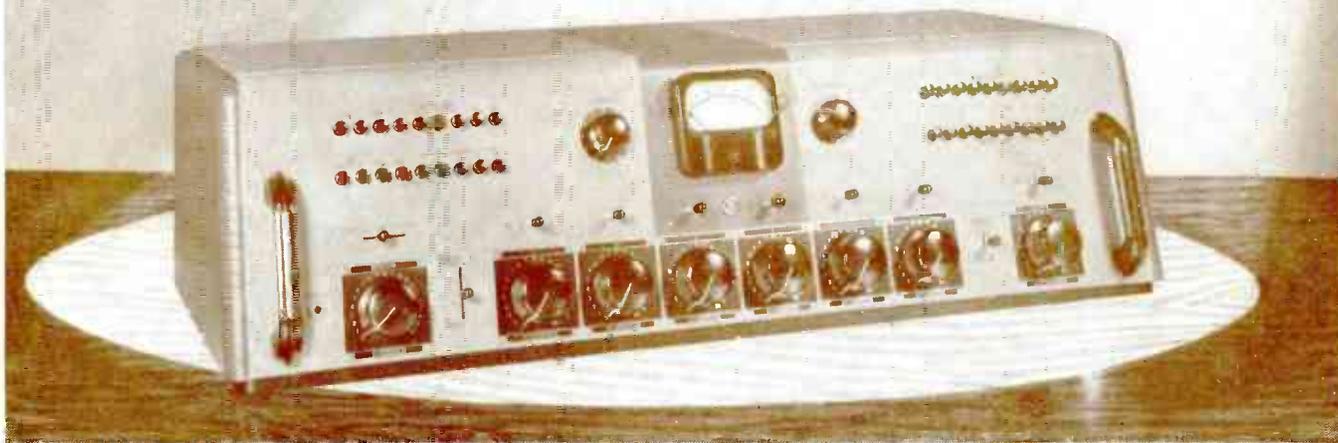
Delivers 25 Watts of high fidelity audio power to either speaker or 500 ohm load. 6 tubes. Fidelity within 2DB gain from 50 to 15,000 cycles. Channel No. 1, microphone (high impedance) 96 DB, channel No. 2, phone (low impedance) 60 DB power output 25 Watts, power consumption 120 Watts; No. 3, 4 ohms. Model S-31-A Amplifier complete with tubes \$49.50.

the **hallicrafters** co.
CHICAGO, U. S. A.
USED BY 33 GOVERNMENTS
SOLD IN 89 COUNTRIES



NOW FLAT TO 15,000 CYCLES!

...Meets Every FCC Requirement
for FM Broadcasting



RCA 76-B2 Consolette Speech Input System with Interlocked Push-Button Switching

ALL the features that made the RCA Model 76-B1 known the country over . . . plus an extended frequency response to over 15,000 cycles! That's the new RCA 76-B2, for *simultaneous broadcasting and auditioning*—with *push-button control* for more circuit combinations with simpler switching operations.

Monitoring, auditioning, cueing, and talk-back are all under push-button control. The high-fidelity program channel affords 6 mixer controls—4 microphone pre-amplifier input channels with switching control for as many as 6 microphones. Location of control knobs and correct slope of panel give greatest *visibility and ease of control*. High power output to line and loudspeakers. Hinged top and chassis mounting for instant accessibility of parts.

And all at a price that even the smallest station can afford! Get the facts on RCA 76-B2—write today for complete data.

Use RCA radio tubes in your station
for finer performance

- ★ Frequency Response 30 to 15,000 Cycles
- ★ Independent Auditioning and Program Channels
- ★ Talk-back facilities for two studios and remote lines
- ★ Emergency Amplifier and Power Supply Circuit
- ★ 6 Step-by-step Mixers—Dual Turntable Faders
- ★ 6 Remote Inputs—Push-Button Cueing Control
- ★ New Illuminated Scale VU Meter
- ★ Two Line Repeating Transformers
- ★ Plate Current Meter and Relay Power Supply
- ★ Attractive Appearance—Two-Tone Umber Grey Finish



Broadcast Equipment



RCA Manufacturing Co., Inc. Camden, N. J. • A Service of Radio Corporation of America • In Canada, RCA Victor Co., Ltd., Montreal

New York: 1270 Sixth Avenue

Chicago: 589 E. Illinois Street
San Francisco: 170 Ninth Street

Atlanta: 530 Citizens & Southern Bank Building
Hollywood: 1016 N. Sycamore Avenue

Dallas: Santa Fe Building