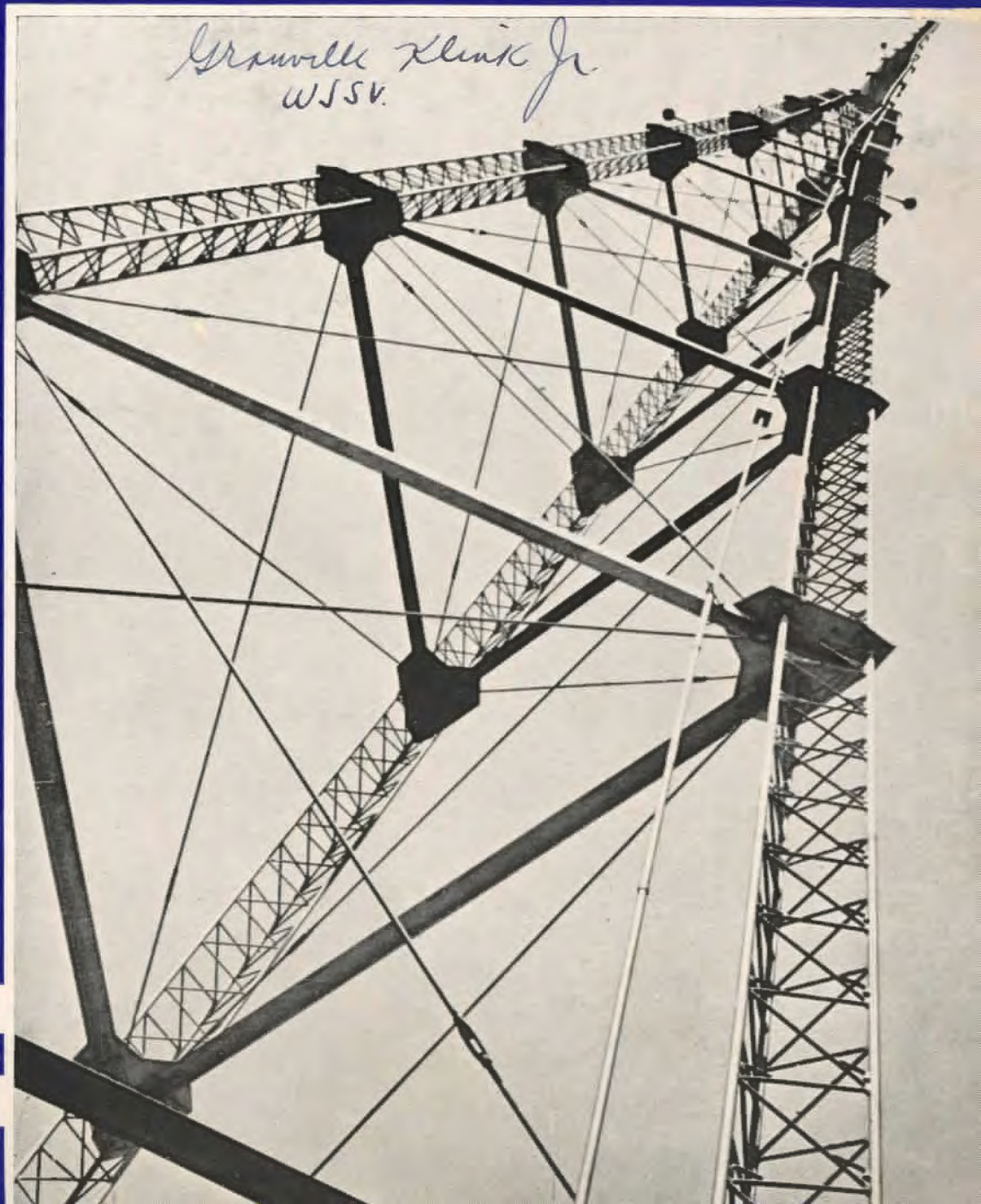
UNDER CONTROL



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UNDER CONTROL

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Editorials:-

NOTICE TO SUBSCRIBERS

DUE to conditions beyond the control of the Editorial Board of this publication, it has been impossible to bring out your July issue on its regular publication date.

For this reason, we have decided to publish a combined July-August issue to bring things again "Under Control." All subscriptions will be extended one month so that you will receive your full twelve issues. We sincerely hope this will prove satisfactory to you.

Thank you.

Editorial Staff, "Under Control."

THE NEW COMPETITION

(Courtesy "The Microphone"—Original U. S. Radio Newspaper—July 24th issue)

THE competition among radio networks, engendered by the American system of broadcasting, although it may have at times been to the detriment of the listener, is becoming more and more of an asset to that same listener.

Said competition has turned from the commercial, from network aggrandizement, from sales of advertising, to an artistic feud. And so it is that this striving to see which broadcaster can outdo the other in program production has given radio, as an artistic medium, a new lease of life.

It may well be that in years to come the Summer of 1937 will be looked upon as a veritable renaissance of the drama in a new medium.

Whatever the motives for producing such outstanding programs as the CBS Shakespeare cycle, the NBC Shakespeare cycle, the presentation of Eugene O'Neill's dramas, Bernard Shaw's adaptation for radio of his own plays, "Back to Methuselah" and Orson Welles' dramatization of Victor Hugo's "Les Miserables," the result for the listening public is a good one.

The desire to do something better than the other fellow is a more mature outlook than the desire to do something because it is good for the doer.

Radio is reaching maturity. And it is about time.

SOS KHAQQ

"SOS, SOS, Amelia Earhart Station calling SOS——." The world awaited, amazed and alarmed, standing by in suspense day after day awaiting further news of the Amelia Earhart Expedition.

If only this "SOS" had been on 500 kc. instead of the voice frequencies of 3.10 and 6.21 megacycles allotted Miss Earhart, a different story might have been written. If there had been flashes of even a faint signal on 500 kc., the fliers could have been found with direction finders or radio compass, which could be trained on them, rescuers following the line to the scene. The two voiced frequency was of little or no use in the heavy and tropical atmosphere, only serving under normal conditions a radius of 500 miles. KHAQQ was equipped for 500 kc. work but Miss Earhart left this equipment behind in Miami depending on her other allotted frequencies. She was reported to have said: "If either Fred or I could use the key it would be different. Since we can't, the antenna (250 ft. reel) would be just one more thing to worry about." 500 kc. equipment with which to transmit, so the "Itasca" could use its direction finder might very easily have spelled the difference between success or failure of the flight.

The two batteries carried by the plane were good for less than two hours operation, without the right motor running, and would have been quickly ruined by salt water in a forced landing in the sea. It was unlikely that the heavy and fast twin-motored monoplane could conceivably have successfully landed on an islet without severe damage to both the plane and its occupants. Besides due to lack of gasoline, the 550 hp. engine could be run for a very short period, and there wasn't a hand generator even if they had had the strength to run it.

It seems that such a long call as "KHAQQ" should not have been assigned to an airplane; taking too long to send, consuming valuable time and watts. Shorter calls are therefore needed. A radio amateur "net" would also be extremely helpful in speeding contacts in emergencies, and with co-ordinated listening there would be less chance of a hit or miss operation.

The success of many modern expeditions outside the bounds of commercial communication has depended on radio. Competent radio operators have accompanied expeditions and flights where human life has been involved. As it is of great importance to have reliable communication in such cases at all times, such expeditions should be required by law to include a person with both adequate code knowledge and apparatus technique.

The first distress message by phone was authentic, but other stray messages in code that were later caught by amateurs as well as the Coast Guard, which were so faint as to be barely intelligible, remain in doubt. The manufacturer's records of the crystal frequencies could have been readily checked to determine the transmitting frequency, and it seems that such information would have been of inestimable value in distinguishing between true and false messages. Certainly someone should have realized that neither Captain Noonan nor Amelia Earhart were familiar with the morse code, and thus have prevented the futile search which cost the government approximately $4,000,000 for the service of sixty airplanes, seven ships and several thousand men, covering an area the size of Texas in the region of Howland Island.

A government ultimatum was issued last May to the effect that stunt flights of any nature would be prohibited in the future. If the government had remained firm in the matter Amelia Earhart wouldn't be missing today; for her round the world venture was a stunt flight and it had the benediction and active assistance of the United States Government before she set out on it.

It is to be regretted that the lives of two such gallant flyers should be lost to aviation due to improper facilities. We join the entire world in saluting the memories of Captain Noonan and Amelia Earhart, the first woman to fly across the Atlantic and from Hawaii to California.

TOGETHER WE STAND

CONGRESS recognized in the Wagner Act the right of employes to organize and to bargain collectively through representatives of their own choosing. These are important privileges and should be cherished.

The ACBT has pioneered in the broadcast field toward better living and working conditions, and just recoguition for a number of years, well aware of the attitude of the industry toward the technical end of the business.

Radio engineering demands a high type of man, preferably one with both engineering and artistic experience; for in this work the secret of exceptionally fine broadcasting is to be found, not only in the minimizing of time lost due to technical trouble, but a reception and blending of sounds that cannot be approached by the human ear listening to the same program in the studio.

It is regrettable that the Washington Chapter and part of the New York Chapter saw fit to break away from the ACBT and become affiliated with ARTA, which had no definite policy or program to offer in the broadcast field. The expression, "Together we stand, divided we fall" might have been true in this case, as it is in so many others, had not the majority of our ACBT members refused to be stampeded.

It was this spirit of unity that enabled the ACBT union to be successful in forming a new agreement embodying a guild type shop, improved working conditions, and a substantial pay increase, making our own union second to none in the broadcast industry.

As it has since its inception, ACBT again leads the way to greater recognition of our particular field of endeavor.

THAT BOSTON TOUCH

IF YOU feel, as you look through these pages of "Under Control," that a good many articles have a Boston background, read on for the explanation.

When most of the New York editorial board left A.C.B.T., the July editor of "Under Control" was chosen, not for his fame or ability, but just by accident. When he answered the cry for immediate action, he had to work fast—and the nearest people to work on, for articles and fillers, were the obliging fellow members of his own station, WEEI, Boston. And that explaius the Boston flavor of this issue.

There are plenty of good writers in every A.C.B.T. station—they're just waiting for a little prodding to turn out some very good reading. Let's hear from them next month. And here's a parting idea: why not have each station, in turn, prepare an entire issue of "Under Control"?

W. H. R.

YOUR cover illustration this month shows a difficult angle shot of one of WEEI's 350 foot towers. We are indebted to Ed Philbrick of WEEI for this interesting photograph. Many thanks, Ed.

"The Captains and the Kings Depart"

GUGLIELMO MARCONI—1874-1937

By Ken Curtis

GUGLIELMO MARCONI was born at Bologna, April 25, 1874, the younger son of an Italian father and an Irish mother. He was educated privately at Bologna, Florence and Leghorn.

As a boy he became interested in physical and electrical science and in 1895 he got the idea that telegraphy through space could be accomplished by means of electromagnetic waves, first foreseen mathematically by James Clerk Maxwell in 1864 and later the subject of experimentation by Heinrich Hertz, Oliver Lodge, Rihgi and others. In 1895 Marconi conducted his first serious experiments at Pontecchio and established communication over distances up to a mile. In 1896 he went to England, and on June second of that year took out the first patent for wireless telegraphy using electromagnetic waves. Distances were gradually increased as a result of constant experimenting in England and Italy. In July, 1897, a company was formed in London to acquire Marconi's patents and carry on developmental work. This company set up the first permanent commercial wireless telegraph stations, one at Alum Bay, Isle of Wight and the other at Bourenmouth, both in England.

The first lives were saved by Marconi's "wireless" when on March 3, 1899, the East Goodwin lightship, first to be radio equipped, was rammed by a steamship. Information regarding the disaster was immediately wirelessed to the lighthouse at South Foreland, twelve miles away, and lifeboats went to the rescue of the crew of the doomed lightship. In October, 1900, the first commercial long distance station was constructed at Cornwall and communication was effected over distances of about two hundred miles.

December 12, 1901, marks perhaps the most important date in the annals of communication history. On that day Marconi successfully spanned the Atlantic, hearing the transmitting station in Poldhu, Cornwall, England, from a receiving station set up at St. Johns, Newfoundland. In 1902 Marconi discovered the fact that radio signals travel farther at night than in the daytime. During the same year he patented the first magnetic detector, a big step forward in reception. In 1912 Marconi's "timed spark system" development made possible continuous wave signals which finally on September 22, 1918, hurtled across land and sea to communicate intelligence by means of the dots and dashes of wireless between England and its far distant dominion "down under," Australia.

Marconi, after the World War, experimented with ultra high frequency transmission, propagation characteristics and static elimination problems. He was awarded the Nobel Prize for physics in 1909, the Albert Medal of the Royal Society of Arts, and in the United States, the Franklin and John Fritz medals.

The preceding paragraphs are a cold, lifeless recitation of encyclopaedic facts, but we who follow in the footsteps of "Father" Marconi should be able to read in them a stirring and romantic drama: the story of a man, fully able to spend his life in ease and luxury, forsaking ease and idleness for a ceaseless and untiring attempt to develop and bring to perfection for the benefit of humanity the ideas first envisioned as a youth and which have proven, as he foresaw many years ago, of incalculable value. We look forward to the time when the culmination of these ideals may bring about a universal understanding and world peace. It is our task now to carry on from whence Marconi was forced to drop his work. Let us dedicate ourselves to do our bit, however small, to follow the ideal of the originator of our profession—a constant striving for further perfection of what many people consider a perfect thing, this all important social development, Radio. Marconi is dead—long may his discoveries live!

GUGLIELMO MARCONI—1874-1937

ON THE ROAD FOR NEWS

By Howell Cullinan

Portland Head Light
Courtesy New England Council

(Howell Cullinan is the author of two books, "Pardon My Accent," his experiences in a newspaper radio studio, and "Of All Places," a book of adventures all over the world. His news broadcasts over WEEI are enjoyed by all New England.)

WHEN the Press-Radio Bureau in New York made its first report on its work, it said that the new plan seemed to be working well everywhere except in New England. But New England, it found, did not like Press-Radio news from New York.

East is East and West is West—but New England is something else. It is not surprising that a landslide should sweep the country except for Maine and Vermont. It is also quite in character for the story to come from Nantucket of talk of secession from the Union.

New Englanders are accustomed to have New Yorkers, on coming to Boston, pick up a Hub newspaper and show astonishment that the Boston Globe with its rural columns should flourish in a metropolitan center. Boston news broadcasts follow the lead of Boston newspapers, not New York.

"Why don't you have a newspaper in Boston like the New York Herald-Tribune or the New York Times?" was the question often asked of me by New Yorkers.

The answer is: first, if there were room in Boston for a newspaper such as the New Yorkers described, someone would meet the demand; secondly, that all New Yorkers coming to Boston buy their home-town newspapers, just as New Englanders visiting other parts of the country retain their preference for some Boston newspaper.

Station WEEI in Boston was established by Boston newspapermen. It has always aimed to keep its local programs close to the folks of Cape Cod and Gloucester, Charlestown and Concord; Maine coast and New Hampshire hills. Likewise, its news is quite in keeping with the local character of WEEI's appeal. How have these results been accomplished?

First, for four or five years the Program Director of WEEI has been giving talks before Women's Clubs, Rotarians, Lions, Parent-Teachers' Associations in his listening territory. During the winter, as many as four or five talks have been given each week, from Cape Cod to the White Mountains. At the conclusion of the talk on "Broadcasting the News," the speaker invites questions, usually with the help of a "stooge" planted in the audience. These talks, with fresh stories and incidents each year, have been given as many as four and five times in some New England towns. Every section within the listening area of WEEI has been visited at least once.

Every weekend finds your writer, and his outfit, dropping into some locality, unexpectedly and quietly. E. B. Rideout's weather forecast is the guide. If the prediction is cool, the expedition is headed for the south side of the Cape. For a warm weekend, the outfit is headed up the Maine coast, or into the White Mountains.

We say "outfit." It is indeed an outfit. One of the new, roomy, all-glass beach wagons has been so completely equipped that it could be used for a transcontinental tour at, literally, a moment's notice. As it leaves the Harvard Club in Boston, it betrays not a trace of its varied and enormous contents. A waterproof canvas of subdued hue covers the contents, just below the level of the windows. It has to be unobtrusive, because what starts out as a rough expedition to the top of Mount Washington, may, because of a sudden change in the weather, end at some chateau-like cabin or swanky hotel dining room.

The distinctive feature is a specially made tent which is annexed to the rear of the beach wagon, secured by a drawing-string rope. This is completely insect-proof, with a zipper door and a sewed-in floor, in addition to a screened window. This tent, which opens up very much in the manner of a telescope suitcase, gives all the room of a

trailer without the trailer's disadvantages and restrictions.

Just to give you an idea of the variety of the equipment: three specially made four-inch thick mattresses, eight woolen blankens, (kept in cedar chest with a wardrobe for anything from golf and fishing to dancing) a standard anto ice-box, a special large cork box for ice; three thermos bottles; a variety of electric devices, including a large cooker; two models, charcoal briquet broilers; (the auto heater provides heat—the rear auto light illuminates the tent); a variety of flashlights; a churn which will make a pound of butter in five minutes; a five-gallon water bottle and a gallon water bottle; a gallon glass jar; a folding cot (two

All the Comforts of Home

persons sleep in the beach wagon); window curtains and window nettings; two nettings large enough to cover the entire car; canvas big enough to cover the entire car; factory first aid kit with extra preparations for bad burns; fire extinguisher; large rubber blanket; balsam pillows; a curious variety of tools including a saw and a drill; an equally curious assortment of cooking utensils with the big kettle for boiling lobsters at Rockport in clear sea water; an inventory of canned goods, such as the standard powdered milk and other emergency rations, which could keep a party well nourished for a couple of weeks in an emergency; containers and cardboard dishes to make all dish-washing unnecessary.

It sounds like a truck load? Well, it is surprisingly light, because all articles have been chosen with weight in mind, and what is more important, it can be stowed away, in nests of kitchen utensils and ice boxes so as to have articles such as rubber boots, rubbers, bathing suits or spare gas within easy reach. A quick departure may be made in twenty minutes.

On Monday morning, the people of New England are accustomed to hear with their news, a first-hand report of changes in some section of New England, or some little detail which plainly indicates close study of a certain locality. A phrase, introduced in a news report, can convey so much to thousands of listeners. Does Townsend Harbor mean a waterfront to you? No, it gets its name from being a refuge. The village is nowhere near the water. What does Littleton mean to you?—acres and acres of apple trees is the answer.

Often we receive a letter which says: "How well we recognized the subtlety in your words when you said "that section of the road is said to be very winding and dangerous. How well you knew!" From week to week, listeners in New England become aware that WEEI's News Studio is quite familiar with its neck of the woods, its moods, sympathies and gossip.

SCOOP FROM THE SKY

TWO exclusive scoop broadcasts were handled by WCCO, Minneapolis, and KROC, Rochester, Minn., when the stations joined in presenting an eye witness account of the ascension of Dr. Jean Piccard in his unique stratosphere apparatus from Rochester, Minn., on July 8th.

Going on the air from Soldiers Field, Rochester, at 11:10 p. m., the stations offered listeners a continuous eye witness picture of the unusual proceedings until 12:45 p. m. During the last half-hour, a two-way conversation with Dr. Piccard, then nearly a half-mile in the air, was rebroadcast. The famous stratosphere balloonist carried transmitting and receiving equipment in the gondola of his "Pleiades." Tuned to his broadcasting equipment was another short wave set-up on the field.

Arrangements had been completed by WCCO to feed the recount of the actual ascension to the CBS network, but a sudden though brief change in weather conditions caused a delay in Piccard's take-off time, thus necessitating cancellation of the hook-up. Had the flight taken place on schedule, it wonld have meant an exclusive CBS feature.

As it was, Piccard took off at 12:03 a. m. Prior to that, the two stations carried descriptions of the field operations of the 150 man ground crew and fastening of 100 balloons comprising the "grape clnster" that made this flight so unusual.

Continued on Page 22

THE POSSIBILITIES OF TELEVISION

By Hollis S. Baird

(Hollis S. Baird is an authority on television, aud is identified with The General Television Corporation in Boston, which has the visual broadcast station W1XG.)

DURING the past year the Radio Broadcasters, Engineers, Manufacturers and the Press have had several opportnnities to see the most recent developments in Television as demonstrated by the National Broadcasting Company and the Philco Radio and Television Corporation. The systems all used the Zworykin "Iconoscope" as a camera and the "Kinescope" as an image receiving tube. Naturally these demonstrations have caused a lot of opinions to be given by members of the various groups about the advent of television as an industry in this country. The opinion expressed by members of the same group, has in general been the same.

The Radio Broadcasters seeing that the cost of a Television Station would be about the same as for a 50 kw. Radio Broadcast Station, with the cost of the television programs also being high, have generally felt that the installation of television stations would be from three to five years away. The Radio Manufacturing group believing that the public expects their radio sets to become obsolete when television receivers are offered for sale, and as a result withhold from buying any new radio sets, have also been pessimistic about television in the near future, and radio dealers have actually created censorship on the news of television activities in many metropolitan newspapers which carry a great deal of radio set advertising.

Radio Engineers in general have been fairly non-cnmmittal about the television situation in print, but plenty of them are burning the "midnight oil" in preparing for Television as an industry. The opinion of the press who have viewed these demonstrations has been most varied, from the most optimistic who have said that Television receivers would be on sale in 1937, to the other extreme saying that the public would not have television for a hundred years. The opinion of the press as well as being the most varied, has in general been the most inaccurate, due to its inability to understand completely the various problems that television faces in order to change it from an experimental natnre to that of a nationwide industry.

I do not intend to prophesy when television will be here as an industry but I am going to enumerate a number of pertinent points that I have not seen together in any other article on television that has come to my notice. Many of these opinions are a result of nearly ten years activity in television development, investigation and experimental broadcasting of television programs.

Before going into the possibilities of television, it may be desirable to mention the quality of the television images that have been shown in recent demonstrations. Using 441 lines with 30 images per second, the detail is approximately equal to that of 16 mm. movies, with the color of the image either a greenish or yellowish white depending upon the screen material used. Up until recently the size of the image was limited to the size of the end of the cathode ray tube used for reception, which was 7½ x 10 inches in the largest tubes generally used and which can be practically made. During the past few months a small cathode ray tube has been demonstrated by the RCA, which has a bright enough image to allow projection with satisfactory brilliancy up to 3 x 4 feet. Although the life of this small tube does not compare as yet with the larger cathode ray tubes, there is no reason that further development will not increase its life in the near future. The introduction of this small tube with its projected picture about the same size as home movies might seem to make the large cathode ray tube just mentioned become obsolete but it seems to the writer that there will be a need for both types of tubes. The projected picture created by the small tube must be treated the same as any motion picture image on a screen and that means, almost total darkness in the room in which it is observed. The smaller picture which is viewed directly on the end of the larger cathode ray tube, is of sufficiently greater brilliancy and of a size that can be protected from stray lighting so that it can be viewed in the usual living room with some care in keeping the lights placed. This means that members of the family can watch a television program with the smaller image or divert their attention to other activities in the living room, where the larger image on the screen will require darkness and complete attention to the television program as long as this continues.

Enough has been said about the received picture, except to say that the "tuning in" of the image is as easy as the operation of many of the newer and larger radio sets with their great num-

Continued on Page 19

WHAT PRICE MUSIC?

By L. G. del Castillo

(The author, better known as "Del," is Production Manager of WEEI, and what he doesn't know about music wouldn't even fill this page. In this article, he presents some thoughts on radio music, past and present.)

THE obvious answer is, of course, "Thirty-five cents." Maybe too obvious. A slightly less superficial reply might well be, "The cost of your set." For with all the astoundingly rapid development of radio programs in cost and pretention since their inception less than two decades ago, it is still as true as ever that their backbone is music. Out of any station's daily schedule, it will be found that in over 90 percent of its programs, music plays some part. That that part may be nothing more than a three second fanfare only goes to show how flexible a medium music is. It might be likened to newsprint in a paper, which is as useful for supplying the main body of an article as it is for calling attention to it through a headline.

Back in the dear dead days of radio's dawning, music was naturally even more of a lifesaver than today. With little planning and less money to go on, studio managers soon found that there were two practically inexhaustible sources of supply—the phonograph record and the amateur performer. Accordingly they drew on both to the point of exhaustion, not of the record, or the performer, who loved it, or of the manager, who was saved by it, but of the listener, who, paradoxically enough, didn't bother to listen to it. Why not? Because, dear radio friends, those were the days when the fans weren't so much concerned with **what** came out of their sets as with **where** it came from. Remember all those applause cards? Remember the DX hounds? Remember staying up till 3 A. M., chafing at the bit, impatiently waiting for station identification so you could switch to something else? Remember?

And so the music went droning on and on in a steady relentless stream. "You will now hear John Philip Sousa's inspiring march, 'The Stars and Stripes forever.' This is a Columbia phonograph record." "Miss May Zilch will now sing 'Bird Songs at Eventide.' She will be accompanied at the piano by Miss Esta Gooch." "Little ten-year-old Billy Hooley will now play Beethoven's 'Minuet in G'." Can you wonder the fans went DX hunting?

And all this in the face of the fact that music, like the recent song hit, went in sounding like one thing and came out like something else again. Or, to paraphrase the adage about March, it went in like a lamb and came out roaring like a lion. The extreme lows and highs, absent for the most part in speech, gave considerable difficulty in music. Instruments like the piano, the organ, the harp, would rattle your speaker like a first class thunder storm. Two sopranos in a duet would set up a cross vibration that would curl your teeth. (And they still do, incidentally.) And oh, those Chinese restaurant five-piece bands! And oh, those half-baked tenors! And oh, those coloratura sopranos! Oh!!

And the professional musician — how about him? Well, there's an interesting analogy there with the motion picture theatres. The development of radio corresponds roughly with the development of the sound picture, and the results on the professional musician have been about as disastrous in both instances. He has taken a double licking. Fifteen years ago the theatre musicians were going strong. Every movie palace had at least a pianist or organist; the de luxe theatres employed anywhere from ten to one hundred men in their orchestras. Then came the sound pictures, which began wiping them out like Tommie guns. Blasted from the pits, they sought refuge in the radio studios. But canned music followed them right along in, and mowed them down with electrical transcriptions.

Today the musicians are fighting their battle behind the entrenchments of the network centers. But New York, Chicago and Los Angeles can't support the entire American Federation of Musicians, and Mr. James Petrillo, president of the Chicago local, wants to do something about it. There are conferences going on which, before the end of the year, are apt to change the whole transcription set-up, which, the union musicians claim, is now benefiting a few hundred musicians at the expense of many thousands.

The outcome is in doubt. There's no sense in killing the goose that lays the golden eggs. Many independent stations depend for revenue on their transcription programs. And in the network centers employment of musicians is at its peak, both for live musical programs and for the making of recordings. Some increase of tax is inevitable, but it would seem short-sighted to disturb the

Continued on Page 22

TUBE NOTES - Part II

By J. V. Cosman, Federal Telegraph Company

THE first article under Tube Notes was confined chiefly to metals used in vacuum tubes. This time glasses as used in vacuum tube work will be the topic.

In general, two types of glasses are used, soft glass, sometimes called lime, or lead glass, and hard glass otherwise known as nonex, of G702P. Nonex is a trade name used by Corning glass works.

There are hundreds of glasses having different properties and characteristics depending upon their formulae, but most of them have some or all of the following ingredients with silica base: calcium, lead, aluminum, potassium. Most of these are used as oxides, although in the case of calcium, it may be a carbonate; and potassium, a nitrate. Borax or some other fluxing agent is frequently added to reduce the melting temperature.

In the interest of economy, the ingredients of glass as nearly as they can be fitted into a particular formula are obtained from clays, rocks and sands. These are chemically analyzed and if found to be free of undesirable impurities they can be used. As an example, aluminum oxide is extensively found in most clays, calcium carbonate in limestones; sand is almost pure silica. Frequently a number of desirable ingredients are found in one clay or rock. The proportions as obtained from these sources seldom completely satisfy the formula. The lacking ingredients are made up by adding the chemically pure substance. After crushing to a fine powder the batch is thoroughly mixed and melted in a gas or electric furnace.

The molten glass is fed to machines for forming into blanks, tubing or cane, and is kept soft and workable by heating in the machines where necessary. All glass products used in tubes are carefully annealed by heating to red heat and permitting them to cool slowly to avoid glass strains. Glass is checked for strains by observation under polarized light in a polariscope. The strained portions will break up the light into its primary colors and are pretty to observe, but dangerous in vacuum tubes. Strained glass will crack with mechanical or thermal shock and if used in vacuum tubes in this condition will nearly always crack or collapse under atmospheric pressure.

Lime glass was almost exclusively used in power tube work at one time. It seals well to thin copper, platinum and dumet (a copper clad iron) and is workable at relatively low temperatures in a gas-air fire. The disadvantages are poor electrical qualities, low heat dissipation capabilities per unit area, tendency of its metallic oxides to reduce to the metal when exposed to a reducing flame, and that it makes a poor seal with tungsten.

Nonex, because of its superior electrical and heat resisting properties, as well as ahility to seal well with tungsten and copper, has almost entirely replaced lime glass in power tube work. Its softening point is considerably higher than lime glass and cannot be worked in a gas air flame without the addition of oxygen. In some cases hydrogen is also added to produce a hotter flame.

In addition to the above mentioned types of glasses, there are others which are variations also used in connection with tube work for special purposes, such as beading (which will be described in a later article), or for making graded or step seals. Hard glass cannot be sealed directly to soft glass and frequently it becomes necessary to do so. A graded seal is made up of eight or ten small sections of glass, each having slightly higher degrees of hardness, and joined end to end to bridge the gap between soft and hard glass.

For vacuum tube use, glass is made up in three forms; blanks (bulbs), tubing, and cane (solid rod). Blanks are blown in moulds in hundreds of shapes and sizes, depending on the type tubes they are to be used for. They are carefully examined for glass strains and uniformity of wall thickness in the inspection department. Those showing strain, heavy on thin wall thickness are rejected. The blanks are carefully washed before using and surprising as it may seem the washing problem at one time was one of the biggest. Unless glass is thoroughly clean and free from dust, grease, chemicals, etc., any number of difficulties are encountered in working it. Some substances when left on the surface will cause it to become milky, others will make it brittle and unmanageable when shown to the fires.

At first chemicals such as Oakite and strong soaps were used, but it was found these would tend to etch the glass and were almost impossible to rinse out. Milder soaps were tried and even these were not satisfactory—careful washing in distilled water and alcohol proved most satisfactory.

Drying was also a problem. Attempts to rinse with highly volatile chemicals such as ether, carbon tetrachloride, or alcohol left an oil film which was troublesome. Drying with supposedly lintless paper of which at least thirty different varieties

were tried was also unsuccessful. Lint was bound to be left on the blanks and to make this method more discouraging rubbing the glass with paper caused it to become statically charged and within a few minutes the glass was covered with dust particles attracted to it.

The solution was to increase the number of washings and rinsings in pure distilled water and dry the blanks in a blast of warm air, then wrapping them in lintless tissue until ready for use. Tubing is used extensively for beading, exhaust tubilations, stems, exhaust manifolds, and mercury condensation pumps in connection with tube work. It can be obtained run of the mill which is irregular in diameter and wall thickness or selected grade which is uniform. Only the latter is used for power tubes. Glass tubing is made in numerous diameters ranging from less than one-eighth inch to several inches, and wall thicknesses from thin sign glass 3/64 inch to heavy walled capillary tubing.

Cane glass, except for building up beads and supplying a little extra glass for thin spots, is used almost exclusively as a tool to catch and remove molten glass. This is frequently necessary when opening the end of a blank for sealing to copper anodes. In this case the blank is decreased in diameter from 4 in. to 2½ in., and naturally the reduction in diameter would increase the wall thickness considerably. While the blank is turning in a lathe and is soft, a piece of cane is touched to the blank and the excess glass is drawn out and twisted around the glass rod which the glassblower rotates between his fingers. It often reminds me of a kid drawing chewing gum from his mouth in a thin string and wrapping it around his finger. I might mention that no glass room could be happy without cane glass, because it is the glassblowers' universal plaything. In their spare moments nothing gives them more pleasure than to make you a monkey on a stick or a dozen fancy cocktail stirrers.

All glass, but especially blanks, to be used in tubes must be protected against scratches, for once the glazed or polished surface is broken, blanks will crack readily with shock. Gritty surfaces are especially hard on blanks. A tight fitting rubber glove is pulled over the blank for protection when polishing the inside of an anode which has been attached to a blank.

Blanks are cut by rotating in a lathe and scratching with a diamond held on a steady rest. A loop of nichrome wire attached to a heating transformer is fitted into the scratch, pressure of a foot switch applies power to heat the nichrome wire, and the blank is rotated to heat the glass evenly along the scratch. Then a damp cloth is brushed around the scratch and presto, the blank is cut. Seems simple, but it requires practice to do the trick without getting ragged edges or vertical cracks. Glass cut in this manner has a sharp edge and cracks easily, but if placed in a hot flame and polished will not cut or crack.

Small sections of glass tubing which must be uniform in length, if needed in large quantities, are cut on a very thin carborundum wheel. The wheels are made of hard rubber impregnated with carborundum, the rubber serving as a binder. Water is continuously sprayed on the wheel while cutting.

Glassblowers cut tubing and cane by scratching with a glass file and grasping the glass on both sides of the scratch and simply pulling it apart at the same time bending it away from the scratch slightly. This also requires practice to obtain a good clean break.

As in the case of metals, glass must be kept scrupulously clean and it is not uncommon for it to be washed as often as a dozen times before the final product is obtained.

Tube Notes will be continued in a future issue.

Sizzling Sidewalk Fried Eggs

A NOVEL idea in broadcasting was carried out successfully by WEEI, Boston, over the CBS coast-to-coast network. The scene was across from Boston Common, at 3:15 P. M. on July 8th. Jay Wesley, Columbia's special events announcer in Boston, donned the uniform of chef for the program and supervised the race in the frying of two eggs, one on the sidewalk and one on the asphalt pavement. A chef from one of the local cafeterias attended to the frying, while E. B. Rideout, Boston meteorologist, was interviewed on the record breaking temperature of 110 in the sun (that's what they said).

Roger Wheeler, script writer, was introduced as the racing "eggspert" and announced odds and handicap for the Massachusetts Egg-Frying Handicap. He quoted odds on the Rhode Island Red egg versus the White Leghorn.

Results of the broadcast showed that eggs would fry on the pavement, but it would take more time than was used on the broadcast.

"PLEASE STAND BY"

By Arthur F. Edes

(Arthur F. Edes is Program Director of WEEI in Boston, and this article on announcing is strictly first-hand. Arthur did his share of announcing in the "Please stand by" days, and is now responsible for the selection and training of announcers at WEEI. Several of his pupils have graduated to the networks. Among the radio courses he conducts at Emerson College, Boston, is one on announcing.)

"PLEASE STAND BY" . . . How often, back in 1921, when I first entered radio, did we hear that phrase? Practically after every program, and many times before a program had even started we heard it. The reasons for its being used were manifold, but often it was to allow the announcer time to run for some music, or a poem to "fill-in" for an artist (usually a soprano) who had not arrived at the studio to present her program. In those days an announcer did practically everything from sweeping the studio to playing the piano. It was necessary for him to book talent, greet visitors, announce programs, "fill-in" where necessary, and run the station in general. Also, he was the ambassador of good-will for the station in that he had to emphasize a friendly contact for his employer with the listeners.

A great deal has transpired since the "Please-Stand-By-Days," but the announcer still retains one of his primary duties by being the station's ambassador of good-will.

Without a doubt, station executives are asked three and four times a day what the requirements are that constitute a good announcer. To try and summarize the requisites in a few moments would be impossible. Some time, ask the network officials what they consider the qualifications of an announcer, and you'll probably hear a list of things that will be impressive and staggering. A partial list of these requirements you will find given here, but in addition there is one word that should be capitalized particularly . . . it is "SINCERITY."

When you go to a store to buy toothpaste, for example, deciding that the brand you have been using for years has become tiresome, and you wish to try another kind, what toothpaste is it that you finally purchase? Through your mind the names of many travel in review; names that have been advertised in newspapers, magazines, and in street cars; names that have been broadcast innumerable times on the radio. Suddenly, almost without thinking, you mention the brand that you desire. It isn't because you have seen it advertised nor because you have heard it mentioned on the radio, but because it is the toothpaste that you FEEL is the best.

Possibly it was the result of radio advertising that made you choose the toothpaste you did, but it wasn't because of what the announcer said about the toothpaste as much as it was what he made you FEEL about the toothpaste. If the announcer can make you FEEL that a product is excellent, he has fulfilled his obligation to the organization that invested its money at his station. The announcer cannot make you feel this or that merchandise is good unless he sounds sincere in what he says. He personally may not patronize the particular product of which he is speaking, but that doesn't matter. It is only necessary for him to make you FEEL that he does.

SINCERITY and CONVICTION are two important words to the announcer.

Radio in America today is supported by the commercial program, and that fact an announcer must absorb. His salary is realized through the commercial program. The station staff may like the announcer personally and think he is a fine fellow, but he cannot be retained if three or four clients in a row, or the agency representatives come to the Chief Announcer or Production Head saying: "Joe Mumble is a fine fellow and we like him, but take him off our show." The radio announcer should realize it is **how** he sells for the client that determines his length of stay at a station. Of course, there are announcers who are just "sustainers" at heart and nothing can be done about them.

For radio announcing the voice must be natural. Listeners dislike unnaturalness and many times an applicant is turned down in audition because rather than being himself, he aped someone he had heard on the air. Even the slightest imitation is easily and quickly recognized.

The voice of the announcer must be formal, without being stiff, and informal without "slopping over" and should denote culture and education.

A pronunciation that is universal will naturally have more chance at a large station heard throughout the country in general, than one which bespeaks of a particular locality. Naturally a network key station would not want an announcer

Continued on Page 20

"JINXED"

A short short story by Don Langham,
Station WFBL, Syracuse, N. Y.

"WHAT'S bitin' ole Cal?" Ace Branner wanted to know as he poked his head in the announcer's offices of Universal Broadcasting.

"If you've been getting in his hair again I'd say lay off," advised Jack Fitzsimmons from his desk in the corner. "He's just been on the carpet for that little muff on last night's Pep-Oil show."

Ace threw one leg over the corner of his desk and fumbled for a cigarette. "After all, that wasn't really his fault. A control operator can't be expected to run three mikes and sound effects at the same time."

"No, and the other breaks he had might have happened to anyone," agreed Fitz. "Cal's just had the tough luck of riding gain on those hoodooed shows."

Branner sighed and eased off the desk. "If the Big Shots would get behind the scenes for a change . . . dammit, they don't come any better than Cal Keller." He dunked his cigarette in an inkwell and propelled it through an open window. "Oh well . . . we've got worries of our own."

"Yeah . . . I'll sweat plenty before tonight's show is finished," said Fitz. "So long Ace."

"Huh?" Branner started for the door. "I guess I can take a hint." "By the way . . . who's the engineer on your show?"

Fitz looked np startled. "Why . . . er, Cal. Why?"

"Ummh" said Branner, carefully closing the door as he went out.

Fitz stared thoughtfully after him for a moment then turned back to his mill with a shrug.

Ten minutes before program time Cal Keller sat in the control room of studio 13, mournfully regarding the script.

Boy! This show was a tough baby. But things had gone off smoothly enough during rehearsal and Cal had checked and double checked every angle of his set-up and no flaws appeared.

His growing pessimism found it a bit ominous.

With two minutes to go Fitz shoved his head in the door. "All set?" he asked.

Cal crossed his fingers and nodded. "Let's go."

Fitz grinned. "Don't let it get you down, Pal. The worm is bound to turn."

Cal settling to his controls, grunted. "If it don't, my wagon is fixed for good."

The show went on promptly and smoothly. It clicked with a precision attesting to the ability of the control operator, producing reluctant smiles from behind the sponsor's cigars. Cal had relaxed a bit in his chair as Fitz announced the final musical number, when Fate took it on the down beat.

It happened. The program went dead. Completely and with a sickening finality.

For one stark moment Cal froze, his scalp tingling.

Galvanizing into action he frantically buzzed master control for an emergency fill. His jittery system blossomed cold sweat as he rapidly checked over the layout. "Might as well fade out trying," he thought grimly.

For two eternal minutes he worked savagely before a wisp of smoke betrayed a short circuit in the power supply.

He pulled a couple of burned wires apart and got back in the program as the orchestra number finished.

The balance of the show mocked him with its perfection.

Resignedly Cal pulled down the set-up and moved for the door. He collided with an apoplectic Program Manager.

"Nice work, eh Keller?" disgustedly.

"I know, I know." Cal sighed.

"But" the PM continued, "If it hadn't been for your cutting that tune . . . the Publishing Society would have taken us for plenty."

"Wha . . . what's that!"

"Yessir Boy, I can't imagine how that dumb producer let that restricted tune go through."

WPG, Atlantic City, Contributes An Unusual Remote

SOMETHING decidedly unusual in remote pick-ups was recently aired by WPG. Decoration Day Weekend saw the running of the first annual "Around Absecon Island Motor Boat Race"—for the Judge Emil Auerbach Trophy.

WPG's chief engineer, Earl Godfrey, and chief announcer, George Foster, covered the race from a vantage point about one-third the way up one of the station's steel towers. There they set up a complete nemo pick-up and, perched on a plank lashed between two legs of the tower, they proceeded to give WPG listeners what might well be termed a birdseye view of the events on the water below. Sorry that space does not permit the inclusion of two very good photos of the pick-up, but we congratulate WPG for trying something really different in remotes.

The WCCO 50 Kilowatt Transmitter

(By Orville J. Sather, Transmitter Technician)

WCCO originally came into existence on September 1, 1924, when the Civic and Commerce Associations of Minneapolis and St. Paul joined with Washburn Crosby Company (General Mills) in taking over WLAG, a 500 watt W.E. station. WLAG had been owned by a Minneapolis radio manufacturing concern, and had gone off the air due to financial difficulties, leaving the Northwest without radio service. Work of installing the new 5000 watt W. E. transmitter and the new studios in the Nicollet Hotel was begun immediately. The new equipment was formally presented to the public on March 4, 1925, the Coolidge inaugural address of that day being the first broadcast.

The site for the new 5000 watt transmitter, near Anoka, Minnesota, was chosen because of the excellent telephone and power circuits available, and the altitude of the site. The transmitter was originally of the Self-Master-Oscillator, Power Amplifier type, capable of 75 percent modulation, but it was later rebuilt by the engineering staff to provide for crystal control and 100% modulation. This transmitter is still used by another Minneapolis station, and meets the requirements of the FCC.

WCCO became affiliated with CBS on October 1, 1929; before that it had been associated with NBC. The station was purchased by Columbia on November 1, 1931.

Early in 1932 it was decided to install a new 50,000 watt W. E. transmitter, and work was begun immediately upon the new building. Because of the satisfactory results obtained with the old transmitter in this location, the new station was erected on the same site, the new building being a few hundred feet from the old station.

At the time of the installation the transmitter represented the last word in super power broadcasting. There was then nothing in the country in regular broadcast equipment and installation that exceeded in power, excelled in effectiveness in modulation, or compared in the quality of the output of this plant.

The transmitter is housed in a 50 x 50 ft. fireproof brick building, with an attached four car garage. The building is thoroughly shielded, and the speech input equipment is placed in a room, the walls of which contain two additional copper screens, the outer one being grounded while the inner one floats. The interior walls of the building are covered with sound proof plaster to reduce reverberation. The coupling house and the antenna are located 600 ft. north of the main building. The present antenna is a 300 ft. vertical radiator. The ground system is composed of 128 No. 10 copper wires radiating from the coupling house, totalling 93,500 ft. The antenna ground system, coupling house, transmitter building, and transmitter are all grounded by a common interconnecting 6 inch copper ribbon. Motor driven controls operated from the transmitter panel make it possible to tune the antenna system and to ground the antenna from within the main building. The antenna current can also be read from the transmitter panel as well as in the coupling house.

The transmitter consists of seven stages; namely, the 810 kilocycle crystal units, two buffer amplifiers, the 50 watt modulated amplifier, a 500 watt push pull linear power amplifier, a 5 kilowatt push pull linear power amplifier, and the final 50 kw. linear power amplifier containing six 35 kilowatt tubes. The last two stages are water cooled. Condenser coupling is used between the final tank circuit and a 600 ohm transmission line. The fourth stage is modulated by a 250 watt audio power amplifier, which in turn is driven by an initial 50 watt audio stage. Complete modulation is realized with an input to the transmitter of —4.0 db.

With the exception of the crystal and first buffer stages, the tube filaments are supplied with direct current from either of two 24 volt, 550 amp. motor generator sets. All C-bias voltages are obtained from either of two 300 volt machines.

Power is supplied at 450 volts from the 13,200 volt power line through a small sub station just outside the building. The power transformers, MG sets, fans, and pump motors operate at 450 volts. Plate voltage for all of the smaller tubes in the transmitter is obtained from a three phase, half wave mercury vapor rectifier which delivers appproximately three-fourths of an ampere at 1600 volts. This rectifier occupies a small part of the space on one of the three power panel units. The tubes are W. E. 258-B, and have an inverse peak voltage rating of 6300 volts and a peak current of 1.1 amps.

The 18,000 volt plate supply for the water cooled amplifier tubes is obtained from six air cooled W. E. 266B or Federal 266A mercury vapor rectifier tubes. A special motor driven blower is mounted below the rectifier tubes, the output of which is piped to blow directly on the base of the tubes. This air is kept at a constant temperature, and produces a proper vapor pressure within the tube, thereby reducing the number of flashovers and breakdowns, and lengthening the life of the tube. Full wave rectification is realized from the delta connected secondaries of the three 83.3 kva. oil immersed transformers. A fourth transformer is used as a spare. The 266A's have an inverse peak rating of 20,000 volts, with a maximum current rating of 20 amps. Provision is made for testing these tubes daily; however, it has been found that the arc drop test is of little value, inasmuch as a tube will sometimes operate for several thousand hours after it fails to give an arc drop reading. Some of the rectifier tubes, however, have been in continuous operation for over 16,000 hours and still give an arc drop reading.

The transformer room containing the high voltage transformers and filter system is directly below the power panels. In this room also are the primary resistors which automatically cause three-fourths normal plate voltage to be first applied to the power tubes for several seconds before full voltage is applied. These resistors are normally shorted out by a contactor operated by a time delay relay.

Although the water cooling system is not of the latest design, it has proven to be effective and satisfactory. Heat is dissipated by four large radiators through which outside air is blown by four 42 inch fans. Air is drawn through three large louvres on the side of the building, and escapes through an air shaft extending to the roof.

Overload relays on all rectifier and power amplifier tubes and power circuits cut the plate voltage in case of an overload or breakdown, and also operate indicating lights on the power panel unit. An automatic recovery relay re-applies the plate voltage after approximately ¼ second delay, so that the time off the air due to a tube failure is negligible. The relay will perform this operation three consecutive times within thirty seconds; if another overload occurs within this the time the relay becomes temporarily inoperative, and the plate voltage must be applied manually or the source of trouble investigated.

The transmitter, power control apparatus, dummy antenna, coupling house equipment, and transformer room equipment are enclosed by cages. Before an operator can enter any of these cages

Continued on Page 23

LET'S GET TOGETHER

IN THE early part of July of this year Edward Hamel, National Secretary of the A.C.B.T. urgently needed information from Acting-President Fred A. Lange of Boston. Hamel turned to his amateur rig, contacted a fellow amateur living near Lange, and got the required information post-haste. A few days later D. W. Dehart of the WBBM transmitter staff, visitiug in Boston, availed himself of the facilities of the same amateur to maintain contact with Hamel.

It seems to me that we of the A.C.B.T. are missing a bet as demonstrated by this case. Surely the majority of our members are ardent hams and have both the equipment and operating ability to carry on interstation contacts throughout the country. Our membership is scattered east, west, north and south. What better way to maintain a closer contact with each other than by amateur radio, no doubt the first love of most of us? There ought to be at least one man at each member station who has the necessary equipment and also a willingness to carry on schedules with the idea of bringing about a greater unity and closer friendship among our respective groups. What say gang? Let's get together on this idea. Suppose we form an A.C.B.T. amateur communications network for the interchange of news, information and the ripening of friendships. We might appoint an official ham representative for each local who could carry on regular schedules and occasionally we might get all hands together for a real round table meeting over the air. Put your heads together, fellows, and let's have your opinions on this idea. If you would like to set the thing in motion send the Boston gang a list of active amateurs at your local, their calls and usual operating frequencies.

K.V.C.

OVERTONES AND HARMONICS . . . . .

CHICAGO

VACATIONS

E. E. Schroeder, Master Control Operator, and WBBM's leading ham, recently returned from his vacation. Just before he left town he took unto himself a very sweet bride. The good wishes of us all are extended to the happy newlyweds. Wally states emphatically that his Ham rig is definitely "Not For Sale!" We wonder?

A. J. Maus, Master Control Operator, followed Schroeder's lead and took unto himself a bride. The bride and groom just got back from their honeymoon which took them all through the east and down the Atlantic seaboard. Art visited WABC as well as WJSV. He states definitely that there's nothing like married life, and is wondering why he waited until nearing the half century mark before allowing himself the peace and happiness that comes with married life. A. J. says his Ham rig is "For Sale Cheap!"

L. N. Hon, night Master Control Supervisor, is collecting a bunch of fishing paraphernalia. So far, he has invested $129.37 and says that before he gets through his total investment will be nearly two hundred dollars. He recently supplied himself with a full golf outfit totaling $138.99, but after two rounds decided he'd better take up fishing. He'll soon be busily engaged in assembling a trap shooting outfit, shot gun and all. Does anyone want to buy some golf clubs or is your pleasure a good fishing reel? L. N. Hon wishes tu sell them "reel" cheap.

D. J. Dunlop, Studio Supervisor, left recently on a three weeks vacation. After being tied up completely for the past month or so with Association matters, D J. felt very much in need of a vacation. We think he deserves one too, carrying with him the good wishes of everyone at WBBM for a pleasant and enjoyable vacation.

Pat Paulsen reports that the Swedish fishing calendar is all wet. The fish bite only when the wind is from the east and the calendar says no fish. This is as it should be, because the bottom of the lake floats on the surface, and the boats go sideways fully as easily as any other way, if and when he can get someone to push them. Pat has acquired a good outhoard motor which cannot be used in local scum and weed, but we anticipate borrowing same on our vacation.

Del DeHart retnrned from his vacation, which he spent performing the last rites and ceremonies on half his mink. It contracted an unknown disease and passed out 25 per day until the novelty wore off. We extend our sympathy to the survivors.

Assistant Supervisor Dud Little spent his vacation inspecting TVA and the mountain Flora and Fauna.

Georgey Ralston is vacationing in the Great Lakes as an operator on an excursion tub. We hope "Ralco Film Ink," doesn't suffer too mnch.

Seel Weigand refuses to take his other week vacation except at the transmitter because there's too much work to do at home.

Tough luck! When Del caught a fish—his wife took all the pictures with an open camera so the evidence is not in existence.

A recent visitor to Chicago was C. H. Malmstedt one of WABC's technical men. He was doing a bit of touring, combining business with pleasure so to speak. We were all glad to see him, and some of the things he had to say proved rather interesting.

NEW EQUIPMENT

WBBM Transmitter has recently installed a Western Electric No. 110A Program Amplifier, which effectively reduces over modulation, distortion and adjacent channel interference caused by over modulation. At the same time the average percentage of modulation is increased, resulting in an increased coverage for the radio transmitter. This is accomplished by the use of a volume control network. For input levels up to predetermined point (about 80 per cent modulation) the relation between input and output is linear. For higher input levels, volume limiting occnrs, and the output is no longer directly proportional to input, but tapers off to limit output at 100 per cent modulation. The result is about 3 db. gain in output, because average level of modulation is increased without danger of over modulation. 3 db. increase in output means the actual difference between 70 per cent and 100 per cent modulation, or 100 kw. signal is put nut with a 50 kw. transmitter. We are receiving many favorable comments on our clear signal, which effectively drowns ont local noise, thereby improving reception.

CONVENTION

All the boys were very happy to have the National Councilors here during our recent negotiations with the company. It's nice to see how the other half of the world lives.

CHALLENGE

WBBM has hired a pair of men who have the most extreme weight in the Columbia Broadcasting System: Ben Wimberly, 284, and Bill Carper, 112. Let's see if any other station can beat this.

FLASH

Static storms are taking unusual toll of transmitter equipment in the vicinity of Chicago. One storm had most of Chicago nff the air within a short period of time. WBBM caught the worst with surge of static gning through power supplies and leaving an open path behind with a total of 58 minutes of the Sunday ball game spoiled. However, it was only the White Sox game, so it could have been worse. Our neighbor WJJD had its antenna struck at the same time, burning out all the meters and setting fire to the tuning house.

LINCOLN—OMAHA

Two new operators have joined the engineering staff in

Lincoln. Glen E. Martin was formerly chief engineer at WMIN, St. Paul, and Marvin Korinek obtained his training at KXBY, Kansas City, Missouri.

The KFAB Master Singers, of Lincoln, Nebraska, were presented in recital with Milan Lambert, KFAB organist, on April 22nd by the University of Nebraska School of Music.

The recital was sponsored by Phi Mu Alpha Sinfonia, national harmony music fraternity, in the Temple Theater, Lincoln. The Master Singers are the male quartet which accompanies Lyle DeMoss, KFAB program director, on his weekly visits to surrounding towns with the Kentucky Club Man on the street broadcasts.

The quartet is made up of Arthur Barnebey, Robert Bellamy, Walter Beusch, and William G. Miller.

Joe Mathews, formerly of WHBF, Rock Island, Illinois, has joined the Central States Broadcasting System sales force in Lincoln, Nebraska, selling both KFAB and KFOR.

Dalton Norman, cowboy singer, has stepped in with the latest additions to his cowboy paraphernalia—two six-shooters—38's mounted on 45 calibre frames.

KFOR has a new news resume, "The Past Seven Days," a review of the week's news, presented each Sunday evening. KFOR's English news commentator, Richard F. Gloyne, presents the review. On May 9, he discussed, principally, the approaching coronation, "Edward, Duke of Windsor—George VI, King of England—May 12, 1937."

Paul Hamman, formerly with the Omaha Bee-News, has joined the Central States Broadcasting System as merchandising manager. Hamman will quarter in Omaha.

The announcers' booths, transcription room and master control room for KFAB and KFOR are being air-conditioned.

Another new show on KFOR is "The Information Desk," a five-minute shot each afternoon. The program includes the weather report, temperature, correct time, latest police and state sheriff bulletins, news flashes, and information concerning lost pets and articles.

When KFAB originated the Great Cathedral choir concert in Lincoln, Nebraska, on Sunday, May 2, the whole city co-operated to give Columbia Broadcasting System listeners the best possible concert. The choir was accompanied by the carillon bells of the First Plymouth Congregational Church.

Mayor Charles Bryan ordered that streets in all directions from the church be blocked to traffic, and requested that there be no honking of motor car horns anywhere in the vicinity of the church during the broadcast. Rock Island Railroad officials silenced all whistles on trains passing the church during the broadcast, also. The choir concert was part of the national observance of music week.

When Lyle DeMoss took his Kentucky Club Man on the Street to Sterling, Nebraska, for a guest appearance on Saturday, April 10th, the town gave him a rousing welcome, going so far as to make him honorary mayor of the place.

BOSTON

VACATIONS

Summer visitors are filling the reception halls of WEEI, but the old familiar faces of control room and studio are missing from week to week—vacation-bound. Here's what they gave out as their destinations:

Control Room: Earl Jones is touring the golf courses of New England; Bill Rule and Norm Young both packed up their families and went to Maine.

Studio: Arthur Edes, program director, has returned from Mexico, with a becoming tan, many mementos, and some stunning snapshots which he took with his F-45 lens Voigtlander. Alice Russell, hostess, is bound for Canada. Camp in Brockton sounded like vacation fun to "Lew" Sargent, announcer.

Production: Lloyd Morse, sound effects, doesn't ask a better place for vacation than his new home out among the trees and fresh air of Cabot Ledge. "Ed" Lord, producer of "Top o' the Morning," is vacationing at Fairhaven, Mass., following his avocation—sailing.

Sales: Dot Drake and Dot Franklin both headed for Canada; Montreal and the Saguenay, and Prince Edward Island, respectively. Jack Beanvais, romantic soul that he is, chose his honeymoon retreat (on the Cape) of two years ago for his vacation spot again this year. Nan Howard is at her cottage, Wee-I, at Truro. And Caroline Cabot broke her vacation into very small bits, so that she could give more attention to working out a new program for a client. During the hottest weather, she was seen poring over latest fashion reports from Paris regarding fur coats—an electric fan on one side, and a long cool glass of tomato juice on the other.

Office: Margaret Grady went off to Maine by plane.

HOORAY!

Good news about L. S. Whitcomb, assistant manager ("Whit" to his friends, and that includes everybody). He is getting the best of a long illness, and comes in to work for a few hours every day.

NEW LAURELS

Petite Ruth Chilton, contralto, and one of WEEI's most popular radio artists for the past six years, said goodbye to us recently. Ruth is now with WSYR, Syracuse, New York.

NEW FACE

Al Teachman recently joined studio control staff and is doing stand-in duty for the vacation schedule. Apparently he was infected with the camera bug sometime ago, for he put in an appearance armed with a Super-Super Brownie 2-A, retrieved from the family garret. Despite the primitive equipment, Al does excellent work by using the smallest stop opening, when light conditions permit. He uses a plus 1 simple optical lens for close-ups, which brings the focal distance down to 36 inches. Barbara is his favorite subject—age three months, she has all the technique for posing a "natural."

OLD FRIENDS

Two members of the old brigade who graduated to the networks visited their old stamping grounds recently: Ed Herlihy, Ace NBC announcer, and Frank Gow of CBS Sound Department.

WNAC NEWS

Spuddy Stone, Control Supervisor and Ollie Miller of Control, are seriously taking up golf these days. Looking for a lost ball recently, they found eleven of them.

Harry Whitmore of Control, has followed WBBM's lead and was married recently. There's plenty of "QRT" on W1BR's 1 kw rig now, but Harry says he'll be back on 20 and 80 meters soon. Maybe!

Arthur Linell, of the transmitter staff is plenty busy these days, putting the boys through their paces in national drills. Art is ensign in the Naval Communications Reserve of the First Naval District and is in charge of NDA.

Bob Wolf of Control and Bill Flynn of Maintenance are on the high seas, somewhere off the shores of Georgia. We hope the seas are high and not the boys.

NEW PROGRAM

"The Boston Hour" (it's really just half an hour) is going places! This program is the brain child of Harold Fellows, WEEI's manager. Jay Wesley takes the part of the Roving Reporter, and interviews celebrities and just passers-by. His sidewalk questionings are varied with interviews over microphones at Boston Fire Alarm Headquarters and Police Headquarters.

ODDS AND ENDS

Del Castillo, production director has been a steeplejack now, and he's sitting back waiting for another inspiration. He recently interviewed two sign builders, 150 feet in the air, atop the Tremont Theater building sign. The control engineer on remote hasn't made up his mind yet whether the strange sound he heard was the rushing wind, or Del's chattering teeth and knocking knees.

Roy Marks, Sales Manager, is taking a lot of kidding these days about his bright and shining sunburned bald pate.

Lloyd Morse, sound effects, has something new in amateur phones: three frequencies. Listen to the low end of the band when you contact Lloyd on W1CAA—his signal is strongest there.

Roger Wheeler, writer of the "Almanac," is back on another 18-day diet. It lasts for about a day usually—then Roger passes another steak house with doors open.

Evelyn Scott's new bathing suit met with full approval of Del Castillo—whereas no one even knew Jay Wesley had one.

The effect Benny Goodman's music—to say nothing of his personality—has upon the girls is astounding. One of the feminine members of the Sales Department, after seeing and hearing Benny rehearse in Studio A, was reported chinning herself on the rail in one of the WEEI elevators.

NEWS ITEM

A microphone on the press bench at Soldiers Field, set up for the Harvard-Yale baseball game, attracted the sudden attention of members of the Harvard class of '27. They rushed to the mike in a body, shouting "Hello, Mother!"—the announcer's voice was lost in the din. To get rid of his beseigers, he finally allowed a select few from Harvard '27 to "say a few words to the radio audience."

CINCINNATI

RETURNING HEROES

Bob DeHart blew in the other day from his vacation on the east coast, where he has been using up plenty of good cinema film. What luck, Bob?

Howard Stephan has returned from Michigan, where he has been fishing for the big ones. To date, we haven't been able to see any proofs of results—is Howard a second George Washington, or not?

NEWCOMERS

The staff here welcomes Palmer Greer and Bud Haynes into our midst.

THEY SAY—

—that Ed Hamel was last seen neck deep in the engine room of his flivver, getting the old bus in resonance to produce a strong carrier to take him on his vacation.

—that there's a faraway look in Announcer Fran Pettay's eyes lately. The theory is that the love bug has bitten Fran, and that he's worrying over the cure.

—that Lin Mason of the announcing staff likes his opera here in the local zoo. We wonder if it's the opera, or Monkey Island that's the attraction.

—that George Wilson claims he is in shape for a trip to the polar regions, since the air conditioning has been in operation in the studios.

MINNEAPOLIS

VACATIONS

Herrmann is taking the other week of his vacation, and from all appearances is getting plenty of co-operation from the weather. He had a 1934 Chevy coupe, but his family grew to such proportions that he bought a sedan body and discarded the coupe body. It looks like Herrmann's car will outlive him, but if that is the case he can change bodies again and get a hearse.

Smith was vacationing in the northern part of the state and got stuck in some rather potent mud holes. One in

fact was so bad that he stayed there all night. He got "A" fish though and that's something.

Anderson had also been vacationing in the north wilds. He did practically all of Minnesota from the Dakota border to Lake Superior and eventually got a few fish in the same place that Smith caught one. They (Anderson and Smith) have purchased outboard motors for future fishing expeditions.

Sather spent four hours on one lake and came back with one fish, but didn't mention the lake. He's probably ashamed that out of the 10,000 lakes we have here, he couldn't find one with more than "ONE" fish in it.

Mills has a cottage out near Lake Minnetonka and planted some sweet corn to partly defray the grocery expense. Larry arrived home one morning and found his wife carefully hoeing around little groups of weeds, the sweet corn having gone by the board. The Mills family has decided that the grocery store is a pretty good place after all.

GOOD LUCK

We regret to report the loss of William Boese, night man at the transmitter. He accepted a position as Radio Inspector at Dallas and left the employ of WCCO July 17th.

AFRICA SPEAKS

Sather has been big game hunting again. He took a hint from Collier's golf to and from the coupling houses, but hunts gophers instead. He has plenty of them to shoot, but says they must know when he is coming. The field will be overrun with them before he starts out, but as soon as he is well under way, they all disappear.

WATER WINGS

Person has been hedgehopping quite a lot lately and arranged to get some water in the wings of his ship, causing him to wash nut the landing gear. No other damage resulted, however, and Russ is not yet a member of the caterpillar club. The ship is back together now and he is again flying from fishing hole to fishing hole.

REVENGE

Announcer Charlie Ross met Engineer George Collier and a cute young thing at one of the Minneapolis night spots. One morning some time later "Homewrecker" Ross gave a plug for George saying: "That was no lady, that was my secretary, Collier." Wonder if George's wife heard it?

In retaliation Collier herewith submits a poem that he has been jealously guarding and which he promised not to publish. It was written by Charles "Rabelais" Ross at the tender age of seven.

Dream castles, dream castles,
Are spun like wispy gowns,
Why is it they rock the world,
When they come tumbling down?

NURSE VERSUS COOK

Collier tried to emulate Persou with his car, and rolled it over very completely and thoroughly. He wasn't injured, but wrecked the car and put his wife in the hospital. She is home now and Collier spent his vacation being an un-trained nurse. He advises us that he is getting to be a right smart pan handler.

ODDS AND ENDS

The studios gang have taken up a collection to buy Ann Henry a champagne cocktail in payment for a little skullduggery on the issuance of pay checks.

Ray Hardenbergh, the largest member of the interstation golf foursome, has resigned his position at KSTP and is now RI'ing at Buffalo, N. Y.; the biggest RI in existence without a doubt.

The station gave Person the Bronx cheer the other day. They sent him out to Hopkins to the Razzberry festival, and if that isn't getting the raspberry in a big way we don't know what is.

Peterson and Palmquist don't seem to be doing a great deal these days—at least we can't get anything on them.

We understand that Anderson, while he was in New York, got taken for such a ride out in Harlem that he had to thumb his way back to the loop.

The wives of the transmitter engineers are getting gray hair as a result of the present work schedule. They don't know from one day to the next whether to serve breakfast at 4:00 a. m. or 6:00 p. m.

NEW MEMBER

Art Peck, formerly field engineer for KSTP, joined the staff of WCCO as an operations engineer. Taking his training at the University of Minnesota, Peck has been in radio engineering work for the past five years. Simultaneously, Russ Person was transferred from WCCO's master control board to the station's transmitter, Sather going back on his first love, the dog watch.

SPECIAL EVENTS

A series of special broadcasts, covering the Trade Tour of the Minneapolis Civic and Commerce Association to South Dakota, was heard over WCCO during June. Eight special broadcasts from towns along the route in South Dakota were staged in three days.

This was the first time that a Civic and Commerce Association Trade Tour had ever been broadcast. Several engineers and other representatives of WCCO accompanied the train, arranging for the broadcasts at the various points of pick-up.

NEW YORK

As this goes to press, Gus Hengel is enjoying himself up in Quebec. Al Hingle has just returned from Saskatchewan reporting a swell time. Looks like a Canadian year here at Wayne.

May we also report that both WABC and W2XE are now equipped with the new W. E. 110A amplifiers.

We had the pleasure of meeting Mr. Despres recently, while he was in town on association business. We personally feel that ACBT is exceedingly lucky to have such competent and enthusiastic legal aid.

Eddie Schreiner has just returned from a couple weeks spent out on Long Island. Swimming, boating, fishing, and eating were apparently his pastimes. Now that Eddie has taken up the art practiced by Isaac Walton, Al Hingle, and a few others, we expect some tall stories. Eddie may have some trouble topping Al's claims, but if they are really good we will report results by way of this column.

Ray Newby returned from Peru and the expedition with some very interesting facts and pictures concerning the eclipse, perhaps we can get an article for a future issue.

After some rather hectic days following the dissolution we have succeeded in reorganizing a chapter of ACBT in New Ynrk. Such a sudden climax rather took our breath away but we have recovered our composure and started off again to try to recover what ground we have lost. Officers elected were: Jack Tiffany, president; Sid Bergere, vice president; J. F. Kenney, secretary-treasurer. The executive committee consists of Tiffany, LaFrandre, and Moe. The amount of time and effort required to meet such a situation is hard to realize, and we thank you of ACBT for bearing with us. We especially appreciate the interest and understanding shown to us by our acting president, Mr. Fred Lange of Boston. His efforts have been most helpful.

May we publicly thank Bill Rule of WEEI for the excellent job he has done in gathering and editing copy for this issue. We fully realize the amount of work that we wished upon Bill just at his vacatinn time, and his willingness to accept that responsibility, when we were in a rather difficult position here in New York deserves the praise of all ACBT members.

To John McCartney, here in New York, also goes a message of thanks for his handling of both the advertising and business details of this issue, all of which he had to sandwich in between something much more important. Mac was married on July 15th to Miss Virginia Bell, of New York. Accept the most sincere good wishes of ACBT, happy couple.

Another marriage to report. Harold Dorchug of Master Control was married on July 17th. It begins to look like an epidemic—we wonder if Tom Donohoe can escape it again—he can't be immune. How about it Tummy? Could that be the reason for such a late vacation?

Lew Clements, after witnessing our attempts to scare up a little New York news for this issue, comes in with the comment: "Why not call that column 'Fill-Harmonics'?" The more we think of that the better it sounds—cullecting material by phone to fill this space is somewhat of a problem. Lew, by the way, has joined the long list of camera hobbyists. He recently bought himself a very fine camera of German make—the name we can't recall at the moment, but it is equipped with a Zeiss lens. We expect that he will have a few good shots for this magazine very soon.

KNX—Sorry, boys, but your material didn't make the dead line for proofs. C. U. next month.

Possibilities of Television (Continued)

bers of knobs. Let us now mention the "Iconoscope" camera as a source of image pick-up. This camera externally resembles a movie camera except that it has no mechanical moving parts, except for raising, tilting or "panning." It has sufficient sensitivity to transmit indoor scenes with lighting similar to that used in movies, or to be used outdoors under practically all lighting conditions or for the transmission of scenes from motion picture film.

There is available today a television system which will pick up images under all of the usual conditions, and transmit them over radio waves with satisfactory detail, for a distance of thirty to forty miles to be picked up on easily operated receivers in the home. A very important element which is lacking is wire facilities for the interconnection of the television stations into a nation-wide network with its many advantages for program production and distribution. The proper cable and associated equipment for this purpose has been developed and tried out over distances up to 100 miles, but it seems reasonable to expect a space of ten years will elapse before this new cable is installed over as wide an area as the present radio broadcast networks, with the more important centers being connected in the next five years. From the above conclusions, we see that television stations for the next few years are going to be generally isolated from one another, and must originate their own programs or get them from motion picture film; the latter being more promising for the majority of the transmissions.

Since the radio broadcasting system in this country exists from its advertising income, there has been much speculation as to the nature of advertising in television programs; particularly since there seems to be adequate evidence that a large portion of the radio listening public is objecting to the amount of advertising that is mixed in with our present commercial radio programs. The possibilities of carrying the message to the public by television seem almost limitless, and if we keep in mind the old proverb that "a picture is worth a thousand words" it would seem that the advertising angle can be removed from the objectionable class. For example instead of the present radio "plug" which is announced and can be conveniently overlooked, suppose that the sponsor of the future television program inserted a scene most conveniently from film, showing their product being manufactured, the interest in the prod-

JESSICA DRAGONETTE
Palmolive Beauty
Box Theatre
Columbia Network
Wed. Eve'gs 9.30, EDST.

uct would be bound to be increased. It should also be kept in mind that in television a studio scene can be super-imposed on a background from film and observed as a composite picture at the receiver, thus providing many ways of creating a desired effect to the observer.

Space does not permit me to go into some of the angles covered by the title to this article, but in closing I would like to impress the idea of how inadequately we can foretell the possible effects of any new basic invention which will be used by any large number of the population. Who could foresee in 1920 the possibilities of radio broadcasting that a speaker in any part of this country or for that matter in any part of the world be able to make themselves heard in any other part of the world; and the by-products which radio development made possible such as public address systems so that large audiences could be addressed for the first time and also the addition of sound to movies which came at a time when movies had got into a "rut" as far as their ability to expand the power of expression.

Television will within a few years similarly increase the possibilities of the radio program and have even a more profound effect upon our social and business lives than the addition of sound to the motion pictures. You will readily see this if you stop to realize the possibility of being able to see instantly, scenes that are taking place, either dramatized or of news value in any part of this country.

How rapidly we progress towards this goal depends a great deal on how soon the broadcast stations in the larger metropolitan centers become active in the television field, since the equipment referred to is available for use.

PLEASE STAND BY (Continued)

whose pronunciation was too Southern, too Western, or too Yankee.

It would appear that the radio announcer has done more to make uniform our national pronunciation, than any other medium ever used. More and more, people are becoming word conscious because of the radio announcer.

The voice which is required for announcing must be fairly mature. The radio audience does not wish to take a child's word for it. You wouldn't want to hear a fellow tell you how excellent a certain kind of car lubrication was if he sounded too young to possess a driver's license.

The pitch of the voice must not be too high or too low . . . the average baritone range would be right. The announcer in using this voice should

not picture his audience seated in a vast auditorium, just waiting breathlessly for him to speak; but rather should he picture the radio audience scattered everywhere in small individual groups. If the broadcaster would realize this, his delivery would lose a lot of its stiltedness and formality.

If you feel that you should be an announcer, don't make the mistake of so many lads I have interviewed by starting your conversation in this manner: "Say, I heard 'Kenny Punch' on the radio from this station last night—he's terrible; why I can do as good as that"! By the applicant's own admission he admits also he is terrible. We don't want someone who can do as good as the ones who are terrible! (if indeed we have any and I doubt it); we want someone who can do a hundred percent better. But usually the fellow who is terrible in the opinion of the critic, is, in the eyes of the station executive, a damn fine announcer.

It all sounds easy, but is it? Here are a few excerpts from announcers' auditions. Try these over on your larynx and see how you personally might make out:

"As the wretched, ragged robber ran rapidly toward the rugged rock, whither the weary Willow River wound, he saw a psyche in a niche near a schism in the chasm."

"He asked the masked men what task tasked and taxed them most."

Probably the answer to that one is "Taking an announcer's audition."

Arc-Backs from the Gang at the WEEI Transmitter

By Warren Stevens

FOR the benefit of the boys on the "Net" who are not familiar with the lay-out of the new modernistic building that houses the transmitter at WEEI, let me say that the operators are on exhibition in a sort of sunken "Bull Pen." The visitors file in on a raised platform, behind the operator, the platform being about 2½ feet above the operating floor. There is a railing between the operators and the visitors, but that does not deter the visitor from dropping "hot dogs" and ice cream cones down the operator's neck as he sits at the control desk! Visitors stand at the rail and gaze in rapture at the operator as he pecks his entries in the log, on a mill; usually some titter goes up from the gallery, probably some speedy typist! We are often compared to gold fish in a bowl, but let me say that a gold fish performs his antics in a photographic dark room compared to us! Of course the control men would love it, but we are not the Beau Brummels they are, and of a more retiring nature. It is a much mooted question as to just who is protected by the railing on the platform, especially when some unescorted female happens to drop in for a visit. Don't get me wrong, but after all there are three of the five transmitter men who are free, white, and over—well let's skip that part. All kidding aside, we have a swell "lash out" here.

Curses, just when the swimming season got under way—so we could swim off the back porch—the State health officials discovered that the waters were polluted—all I can say in defense is that we have been in this location only six months and none of us realized that the ocean could be polluted in so short a time. Oh well, the pollution signs are up, so we will have to take showers instead.

Say, fellows, how about an exchange of ideas and information concerning the equipment we operate? It may be in the form of a quick servicing method on some circuit in the case of failure or pending trouble, or it might be a better or simpler method of maintaining a piece of equipment; trouble is no respector of net work, station or program. Any station is bound to have some, at some time or other, and forewarned is forearmed.

WHAT PRICE MUSIC? (Continued)

status quo too violently. And in the meantime, the one sure fact is that music is as indispensable as ever. Maybe canned, maybe live, but you gotta have music. Fanfares, themes, incidentals, swing, symphonies; they all go into the great melting pot that stews up into the Radio Bouillabaisse. And if you can't find that in the dictionary, don't ask me what it means.

WHO'S WHO

EARL B. JANES (Master Control, WEEI):

Earl became interested in radio while in the vicinity of the Boston harbor watching a sugar boat dock. He immediately decided to go to radio school, get a commercial ticket and put to sea. Upon graduating from the Eastern Radio Institute and receiving his commercial license, and while waiting for his first ship, Earl received a call from a Gloucester station to copy press reports and took the position just to be near the sea. Station WEPS in Gloucester next wanted his services, so, convincing himself that more sea atmosphere was needed before actually tasting the salt air, Earl took the job. He was next assigned to WHDH and finally came to WEEI, where he has been working the past eight years. It all goes to prove that fate had stacked the cards against Earl's ambition to sail the sea. He is often caught reminiscing about that "sugar boat" and the briny deep. He went to Bermuda on his vacation three years ago, and hopes that his next trip will be an extended European tour. His favorite sport is golf, golf, and more golf, playing in the various amateur tournaments throughout New England. Earl's hobby is amateur radio. His first amateur calls were: W1AYL, W1ER and finally W1FM. He is W.A.C. and has worked 97 countries and 33 zones.

EDWARD L. PHILBRICK (Master Control, WEEI):

"Eddie" has been with WEEI for the past eight years, and is a native of Medford, the home of WEEI's new high fidelity transmitter. He first started experimenting with spark transmitters and crystal detectors shortly after the war, and later worked in a radio store selling and servicing "the modern receiver." He graduated from the Eastern Radio Institute and went to sea immediately. Eddie has had various assignments, operating in the Great Lakes, the Nantucket light ship, tankers of the Texas Oil Company, a geophysical expedition in the Southwest, and for several years he was operator aboard one of those famed Dollar Line boats sailing around the world, visiting many

Continued on Page 24

SCOOP FROM THE SKY (Continued)

Dr. Piccard, now on the aeronautics staff of the University of Minnesota, made this ascension in an effort to determine the feasibility of using many small balloons in stratosphere exploration rather than a single large one. Although his equipment burned after landing, Piccard feels the flight was eminently successful.

The second exclusive broadcast by WCCO and KROC took place on Sunday afternoon from Lansing, Iowa, the point at which the "Pleiades" landed.

Many human-interest angles were exploited during the two-way broadcast with Piccard, following the take-off. He carried on several conversations with his wife and two of his sons who were also on the scene. Piccard described his reactions to flying hundreds of feet above the ground, alone at night, in an untried balloon cluster.

WCCO TRANSMITTER (Continued)

he must turn a hand wheel which opens all high voltage circuits, grounds the high voltage busses, and unbolts the gate to the cage. It is also impossible to open any of the panel windows without first grounding the high voltage busses by means of the hand wheels, and it is impossible to start the transmitter before all windows, gates, hand wheels, and switching cabinets are closed.

Second harmonic radiation is reduced to 70 db. below the fundamental by the use of series resonant circuits between each of the sets of parallel plates in the final amplifier and ground.

The transmitter delivers approximately 28 amperes into a 64 ohm antenna, unmodulated. Input to the final stage is about 8.3 amps. at 18,000 volts. Input to the entire transmitter is approximately 250,000 watts, which is more than that used by the entire city of Anoka which has a population of about 5000.

Despite the fact that the transmitter is several years old, the quality of the output is still considerably better than that of the average radio station. Of course, improvements in efficiency, quality, and general operation of newer transmitters have outclassed this installation. However, the engineering staff is constantly on the alert to keep its operation ahead of the FCC standards, as the engineering reports will show. For example, the last monthly report shows an overall distortion of 3.1% at 100% modulation, a noise level of –58 to –62 db. below 100% modulation, and a frequency response flat within ½ db. from 10 to 8000 cycles. True to general engineering experience, it seems rarely possible to get the best results at the time the official reports are made. The distortion frequently is as low as 2.1%, and the noise as low as –64 db.

A staff of five men operate and maintain the transmitter, there being one operator on duty at all times, and frequently two for testing or experimenting. The entire equipment is thoroughly cleaned and checked every week, and adjustments are made periodically and whenever necessary. The equipment requires very little attention during broadcast hours, and seldom goes off the air. Despite the fact that there is ordinarily only one operator on duty, the time lost has been remarkably low.

WCCO coverage is excellent, because of the power of the station, the high ground conductivity in this territory and the absence of an objectionable sky wave, due to the comparatively low frequency of 810 kc. enjoyed by this station on a clear channel.

WHO'S WHO (Continued)

places off the beaten path. Ed's hobby is of course amateur radio, and his high powered 20 meter phone station W1BQN is heard at all times throughout the day and night.

WARREN BIRKENHEAD (Transmitter, KNX):

In the "olden days" (at least thirty years ago), crack Morse operator Birkenhead of the St. Louis Western Union office was busily engaged pounding brass. His brass-pounding was done with a light and airy touch, for he was in love—with the finest little girl in the world—and she was the telegraph operator at the other end of the line.

Whether that old saw about distance lending enchantment is true or not, the fact is that his romance culminated in a happy marriage for the young couple, and in due course of time the union was blessed by a young and lusty junior brass pounder, one Warren Birkenhead.

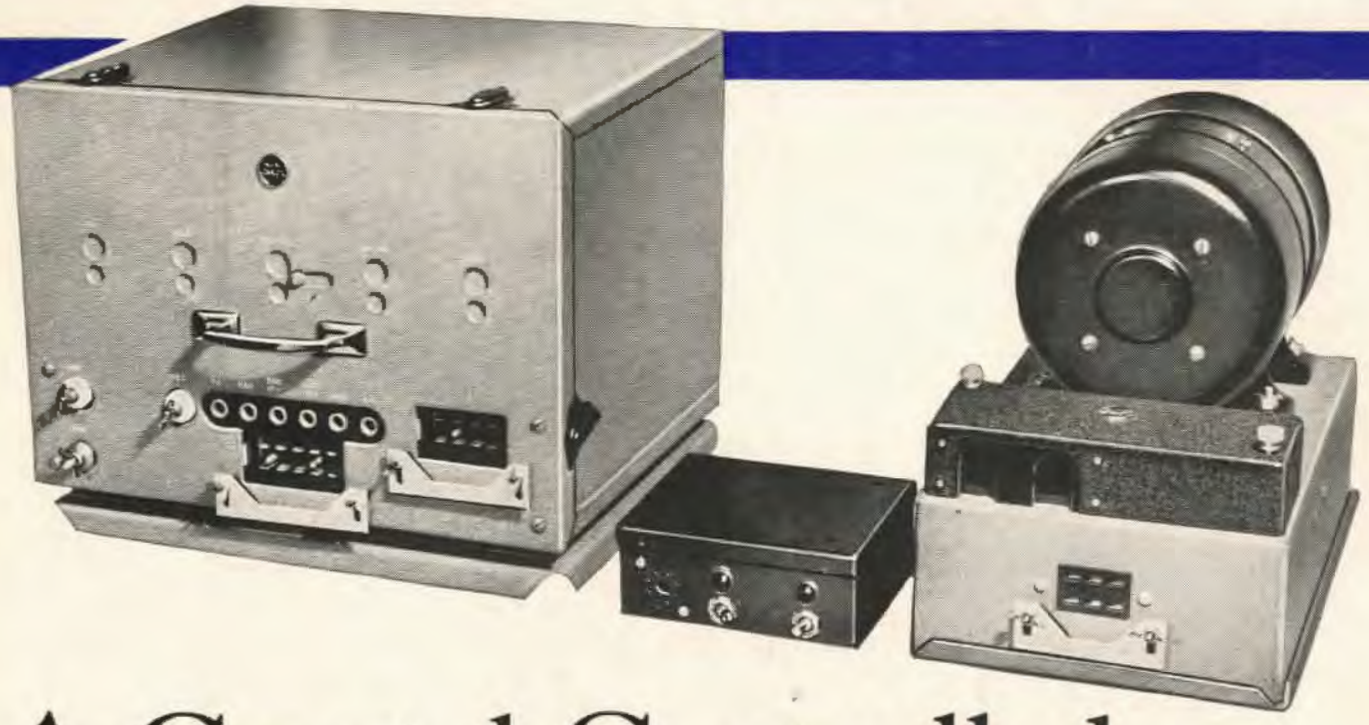
Along with an inherited brass-pounding tendency, young Warren also grew up with the typical brass-pounder's desire to roam, which persisted until his happy marriage in Southern California, the Golden Land of Enchantment—or disillusionment, depending on your point of view.

"Birk's" radio career started in 1921 when he installed the first spark transmitter and receiver in the Elmhurst, Illinois, high school for the purpose of gathering news for the school paper. From that time to the present he has been actively engaged in the design, construction and operation of all kinds of radio equipment. At one time he was Chief Control Engineer for the former Mayor William Hale Thompson's station WIIT, of Chicago, serving for two years before its final deletion from the Call Book.

Later service shown on Birkenhead's record was as staff member of the first NBC studios in Chicago, 1928-29, then Chief of WMT, Waterloo, Iowa, a CBS affiliate, and later as a studio engineer at WMAQ, Chicago, when that station enjoyed the distinction of originating to both CBS and NBC. Some time before leaving the East for Hollywood in 1933 "Birk" saw service in the studios and transmission department of NBC in New York.

Warren Birkenhead is now one of the Transmitter Engineers at KNX and is doing quite well for himself, but still finds time to dust off the old "ham" rig occasionally and pound brass with his many friends of the short wave fraternity.

(Note: For picture and squib about Mr. Birkenhead Sr., turn to Page 24 of your June "Esquire").



A Crystal Controlled

Ultra-High Frequency

Mobile Relay Transmitter

Field relay broadcasts with "studio" quality due to uniform frequency response and low distortion

RCA offers to the broadcasting industry a new, crystal controlled relay transmitter ideal for field pick-up work. Constructed to exacting broadcast standards, this transmitter provides an opportunity for broadcasts of sports or special events outside the studio with unusual reliability.

This equipment offers fidelity characteristics comparable with those of maiu station transmitters. Under good conditions it produces radio pickups from the field with quality that equals studio broadcasts. This is possible because of the transmitter's uniform frequency response and low distortion.

Known as the ET-4315 this transmitter is controlled by a special V-cut crystal which operates at one-fourth the output frequency. The equipment is designed for operation from a 6-volt storage battery, but an AC power unit is available in addition. Ruggedly constructed, it is a reliable and advanced field unit that every progressive station will want to own.

TECHNICAL DESCRIPTION OF RCA MOBILE RELAY TRANSMITTER ET-4315

Transmitter consists of 3 main units—the transmitter case, the dynamotor and the control unit. Units are inter-connected by cables and plugs. Transmitter employs special V-cut crystal operating at one-fourth the output frequency. The oscillator tube is an RCA 1610 (pentode) which drives a 1610 intermediate amplifier. This, in turn, feeds a 1608 amplifier which drives the power amplifier, another 1608. Audio system consists of a 46 driver and two 46's as modulators. Modulation system is Class B, high level, with 100% capability. Frequency response is flat from 70 to 7,000 cycles within ± 1 db. Distortion is less than 7% r.m.s. for 100% modulation between 70 and 7,000 cycles. Frequency range covered is between 30 and 42 megacycles. Power is 15 watts nominal carrier power output. Heat for crystal is supplied. Frequency maintenance to better than .02% is provided. Input level for 100% modulation is about 0 level at 500 ohms.

Rubber mounting of transmitter and dynamotor for automobile use is included. Antenna kit for mobile service is also furnished as are cables and plugs. Type MI-7802 Mobile Receiver and MI-7803 AC operated receiver are available for use with this unit. Both feature new, noise-reducing circuit.

RCA *Broadcast Equipment*

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