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Television

THE MAGAZINE OF VIDEO FACT



WOR's Programming Experience
Plans of Station Applicants
NBC Telecasts the Fights

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APRIL 1945

TELEVISION TONIGHT SHOWS BIG 3 AT YALTA

8:30—STATION WNBT, NEW YORK
BY NATIONAL BROADCASTING CO.



High above the Atlantic, a big U. S. Army airplane speeds the films here for quickest possible showing to the American people...the gripping pictorial record of a great milestone in world history.



**FILMS FLOWN HERE GET FIRST TELEVISION SHOWING
IN AMERICA BY NBC-RCA**

**Attention Television
Set Owners:**

**Hold a
"Television Party"
at your home tonight**

Tonight is another special night for television and your friends and neighbors will want to be in on it. Make it a party. It will be a memorable experience.

FOR the second time television owners located in the 3-State area served by the NBC Television Station will be seeing the world's greatest statesmen, the President of the United States, the Prime Minister of England and the Russian Premier at a history-making conference—first at Teheran and now... tonight...the stirring scenes at Yalta.

Rushed here by U. S. Army airplanes, these exciting U. S. Army Signal Corps films were released only today and will be shown on television tonight by WNBT. This newest demonstration of television service today gives only a hint of the great public service which is ahead for it. Today television

reaches thousands. Tomorrow it will reach millions. When Victory is won, RCA will provide television receivers at a price you and millions of others can afford. RCA will also manufacture equipment for television studios and stations. And you will be thrilled by the new RCA Victor radios and Victrolas featuring the static-free reception of RCA Super FM.

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TELEVISION . . . PUBLIC SERVICE TODAY. The above advertisement recently appeared in New York and Washington newspapers. It announced another in the series of NBC telecasts that have brought great news events . . . such as the Teheran Conference, D-Day and the liberation of Paris . . . right into homes in three states. After the war, RCA in cooperation with NBC and other forward-looking broadcasters will be at work to make television a nationwide and even worldwide public service for millions, not just thousands, to share in.

TELE-QUIZ

What are the current estimates on building a station?

What will be the limitations on the new Iconoscope Camera tube?

What is the story behind radio adaptations?

What camera techniques have been developed to overcome small screen limitations?

How many broadcasters plan to go into television?

What is the story on new studio lighting?

What actions of the FCC affected television last month?

The answers to these and many other pertinent questions will be found every month in TELEVISION.

Keep up with television by reading TELEVISION!

Send in your subscription today.

In order to catch up with the calendar this issue has been dated April rather than March. Subscriptions will be extended accordingly.

Television

The Business Magazine of the Industry

April 1945

Volume 11

Number 3

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Published monthly by Frederick Kugel Company, 600 Madison Ave., New York 22, N. Y. Single copy, 35 cents. Yearly subscription in the United States, its possessions and nations of the Pan American Union, \$3.50; in Canada, \$4.00; elsewhere, \$4.50. Application pending for entry as second class matter. Copyright 1945 by Frederick Kugel Company. All rights reserved. Editorial content may not be reproduced in any form without permission.

Television

NBC and Madison Square Garden

by ROBERT E. SHELBY and HAROLD P. SEE

Two NBC Engineers describe operations of remote pick ups.

It seems clear in projecting television's future that regularly scheduled television station operations will include adequate amounts of film presentations, live-talent studio shows and spontaneous news events and sports exhibits occurring remote from the studio. In NBC's experience thus far, the scope of program activity within the studio has made it mandatory that the film studio and field division be completely and permanently equipped.

The pioneering work of the NBC mobile unit equipment in inaugurating over 300 remote pick-ups within a 28-mile radius of Radio City together with laboratory research resulted in the design and construction of the first suit-case type portable television equipment. This development has made it possible for NBC to pioneer in remote sporting pick-ups from such points as Madison Square Garden, where WNBT has telecast the circus, hockey matches, basketball games, track meets, ice shows, political meetings and boxing since 1939.

Since September 9, 1944, WNBT

has presented from Madison Square Garden professional boxing as a regular Friday evening feature. A month later, Monday evening boxing was added to the regular NBC television schedule. The success of bringing to television homes live broadcasts of actual boxing matches needs no comment from us.

In broadcasting from Madison Square Garden a setup of portable equipment is used. It is composed of eight boxes at the control point in addition to the two cameras. The suit case type equipment is situated on a movable table in a small control room at Madison Square Garden. The units on top of the table are synchronizing pulse generator; synchronizing shaping unit; two camera control boxes and a master-monitor switching unit. Power supplies are on the bottom shelf. All units are shown shock, mounted for transportation and operation in a vehicle.

The synchronizing generator or "brain" of the system is composed of two boxes. The first case contains the master pulse generator. Its electronically regulated power supply is

self contained. The second case includes circuits for generating the blanking and synchronizing pulses from the master pulses generated by highly stabilized oscillators contained in the first unit. These units, when combined, constitute a control system for the operation of several camera chains.

The camera control unit contains the circuits necessary for the control and operation of the camera. There is one such unit for each camera. Monitoring is accomplished by means of the seven inch kinescope and the three inch oscilloscope built into this unit. The signal output of the video amplifier in the camera is transmitted through the camera cable (which may be up to 500 feet long), to the input of the camera control where it is again amplified by a video amplifier and fed by coaxial cable to the master unit.

The master monitor switching unit is used to switch cameras to the input of an associated transmitter or specially equalized telephone line. In this unit, the synchronizing pulse is mixed with the video signal after the camera switching position and the outputs of several cameras may be accommodated. A seven inch kinescope and a five inch oscilloscope comprise the monitoring portion of the unit.



NBC television crew

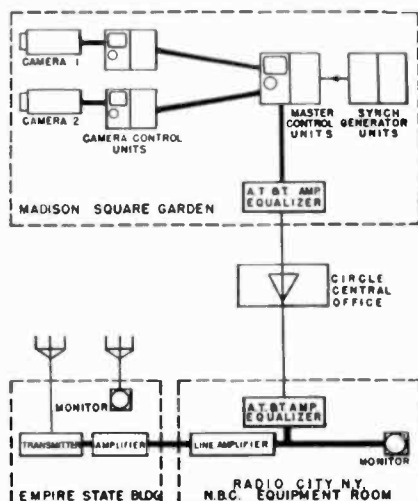
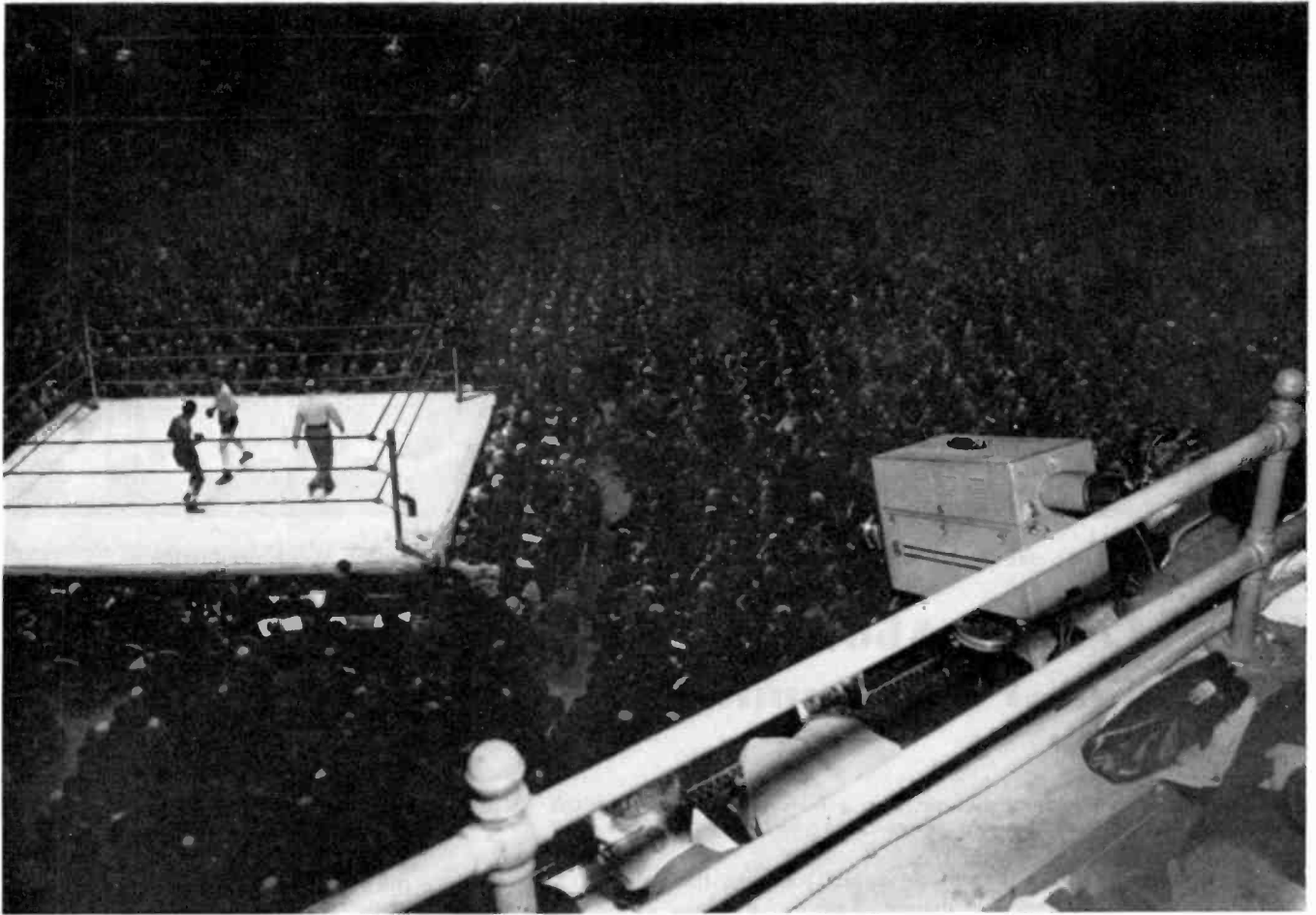


Diagram of remote circuit



Control room in Garden



Overall picture showing camera position and ring at Garden

The cameras employing the "Orthicon" type pick-up tube are constructed in two main pieces. This feature greatly facilitates transportation of this unit by hand to camera locations which are many times not easily accessible. A lens plate containing an objective and view finding lens can be easily removed for substitution of different focal length lenses. A view finder permits the cameraman to follow action and change focus. The scene area in the view finder is greater than the area of the sensitized mosaic of the pick-up tube, thus affording the cameraman a wider range of view than that appearing on the monitor. Action "off scene" can be anticipated and the camera directed accordingly.

The power supply units contain electronically regulated circuits to eliminate effects produced by line voltage fluctuations. The input, nominally considered 110 volts single phase, may be adjusted through the use of a tap switch at any one of five

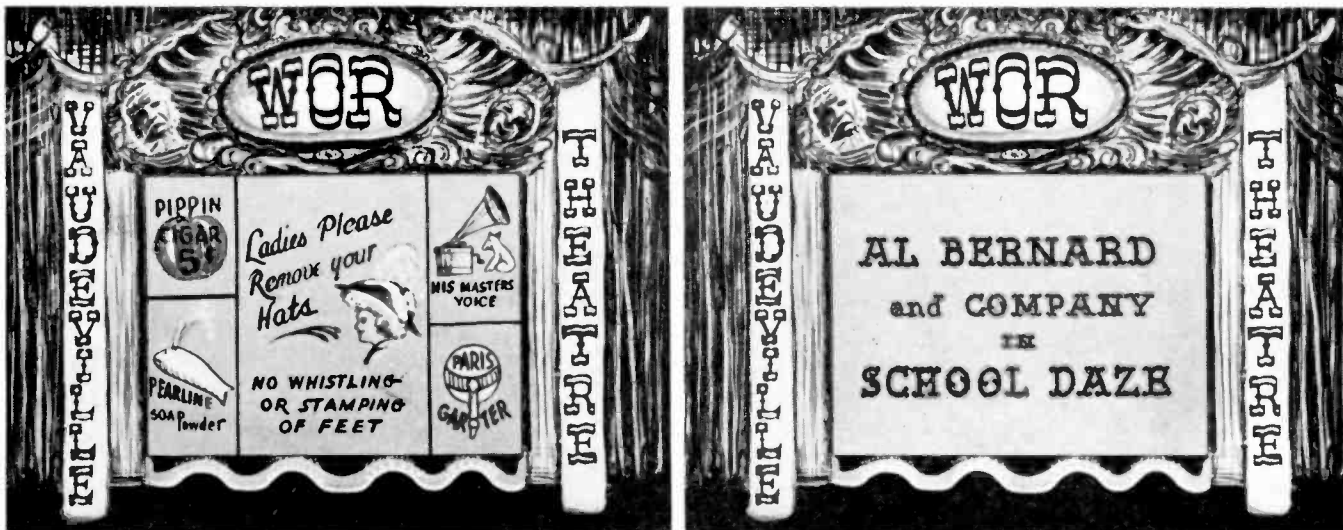
positions. The variable input permits operations of the system at voltages ranging from 98 to 122 volts. The entire two-camera system, exclusive of a transmitter, requires an input of 3,120 watts.

The incident illumination available for the Madison Square Garden shows is provided by forty-four one and one-half kilowatt lamps located eighty feet above the floor level. Extra spot lights are used with some shows. The illumination provided by the standard fixtures is 350 foot candles at the middle of a boxing ring and an exposure meter at the camera position 70 feet from the ring shows a reading of approximately 5 candles per square foot under typical conditions.

The video signal is transmitted from Madison Square Garden to Radio City by means of a circuit furnished by the Telephone Company. This is an ordinary pair of wires in an underground telephone cable installation, but special amplifiers

and equalizers are used with it. At the sending end the function of the "transmitter" amplifier is to match the unbalanced coaxial cable output of the portable equipment (i.e. one side grounded) to a balanced line. The converse of this is required at the receiving end, which in this case, is the television control room at Radio City. A series of variable equalizers has been included with the amplifiers. The amplifiers provide approximately zero loss and constant phase delay between unbalanced wire terminals approximately one mile apart.

This, in brief, is the method used in bringing boxing matches from Madison Square Garden to the many viewers of WNBT telecasts. The wide response from our audience indicates that these bouts play a very large part in the public acceptance of the new broadcast medium. Clearly, then, sports events of all kinds are bound to loom large in television's plans for the future.



Gay Ninety stage-effect title card, with movable slides, used to present recent WOR production

WOR Learns About Television Programming

by BOB EMORY

Bob Emory, veteran radio producer, now television director of WOR (MBS), New York, discusses problems of program production.

While it may be a fact that there are no more problems facing a man about to produce a television show, than there are facing the unfortunate getting up on the wrong side of the bed on Friday the thirteenth, it certainly seems so. Therefore we set some of the trials, woes, and tribulations that have beset us in the past, down here so that you who read, and may someday own a telestation or produce a show, may be forewarned, and therefore forearmed.

The television activities of Station WOR, under whose banner I produce, are made possible through the courtesy and co-operation of the Allan B. DuMont station WABD.

Over a period of almost two years, WOR has presented and produced approximately 80 programs. In order to gain as much experience as possible, we planned a schedule which would encompass almost every conceivable type of show. We have produced minstrel shows, children programs, night club tours, dramas, etc.

While it is an indisputable fact that we are working under wartime restrictions, encompassing material, manpower, and equipment shortages, which in the post-war era will ease

our position, the very problems that hold us back generate a stronger urge to produce a creditable show in spite of all.

Space Limitations

At the present moment, our number one problem is SPACE. No post-war studio should ever be constructed on one floor of an already standing office building, because no matter what lengths you go to in re-designing the space, and no matter how many square feet are provided for length and breadth, you will not have, and cannot have, sufficient height. As an example of this limitation, which occurs all too frequently, a studio shot from twenty-five feet away requires at least twenty feet in height. If this height is not available you will have either overhead lighting creeping into the picture, or you will have a shot of a very long expanse of floor space to cope with, if you "pan" down to avoid the overhead lighting. Another consideration in studio design is the crying need for more breadth than is currently provided in the average studio. If there is enough side space both medium and long shots can be taken in three or four directions with a cam-

era placed in the center of the studio.

In producing the Minstrel Show we learned that the comedians had to wear light colored costumes to offset the black faces of the actors. Brilliantly colored backdrops also had to be used in order to catch the expressions of the blackened faces.

Due to the shortage of space in the "Hansel and Gretel" children's program, we had to use three drops, placed one behind the other, for our three changes of scenery. When it came time to change the scene, we switched the camera to a small side-set of an old man reading the fairy tale to a couple of children. When the scenery of the main set was changed and the next drop exposed, we switched back again. One and a half minute was allowed for change of scenery. Because of the noise created by the change of scenery, the entire production was recorded beforehand and the actors during the actual telecasting merely pantomimed what they heard coming over the loudspeakers in the studio. With adequate side space, we could have had the three sets set up side by side, and merely switched from one scene to another without the necessity of destroying the illusion of reality, by bringing in the old man and the children.

Lighting Problem

Lighting is the next sore spot, and like its brother-problem, space, it will probably be remedied in that alleged era of progress the Post-War Years. At the present time, incandescent

lighting, shooting down on the set from not more than twelve feet above the floor generates enough heat to blister a piano or melt the varnish on a violin in a very few minutes, to say nothing of the effect it has on the actor, or the camera man who is ordered to dolly in for a close-up shot. Another phase of lighting is the great need for showmanship and knowledge of photographic composition by those at the video control boards. With highlights brought out by the use of a sun arc-spot shooting down on the face of a subject, and with conter-lighting less brilliant due to the elimination of the flat-lighting caused by the overhead banks, it is possible to achieve a beautifully soft and well-defined close-up "portrait" of a subject. However, in this case, the main problem is that the video control man, imbued with technical phrases about "flares" and "absorption of light" insists on drenching the entire set with light, thereby sacrificing the pleasing effect that shadows give to the resultant picture as well as the audience's tendency to concentrate on the part of the picture that the director wants him to, when artistically lighted. One point to remember is that movies came of age when they learned how to produce artistically lighted close-ups.

With the flat lighting that is currently being used on the television sets, a movie actress, who has learned from her camera man which side of her face is the most perfect, and which type of close up lighting flatters her the most, will suffer tremendously. In other words, instead of controlling the lighting effect at the source, on the set, the sets are drenched with all the candle-power available, and the controlling of effects, if it is attempted at all, is done by the man at the control board. The inevitable result is a poorly lighted and ineffectual image, causing a general let-down in the effect of the entire show.

Unions and Talent

The problems of music, talent, scenery, carpentry, and sundry other set crew will work themselves out in due time. At present it is a fox and hounds race between many unions, with Mr. Petrillo's boys having the edge, and the IATSE standing next in line to "take care" of the stage handlers. The actor is between the devil and the deep blue sea, with AFRA and the unions which effect the motion picture industry and the theatre, all waiting to see which way that plum will fall. However, regardless of which unions eventually control these specialized groups, the

final problem will resolve itself into one of budget only. Right now the station owner, and the sponsor, are unable to set up a long-term budget, with any assurance that the figure will be adequate.

Problems of material and talent are rapidly becoming routine. With increased competition in video the amateur no-pay artist, interested in the art as an experiment, is being replaced by the legitimate entertainer, who is paid a commensurate figure. This is also true of the literary and musical contributors.

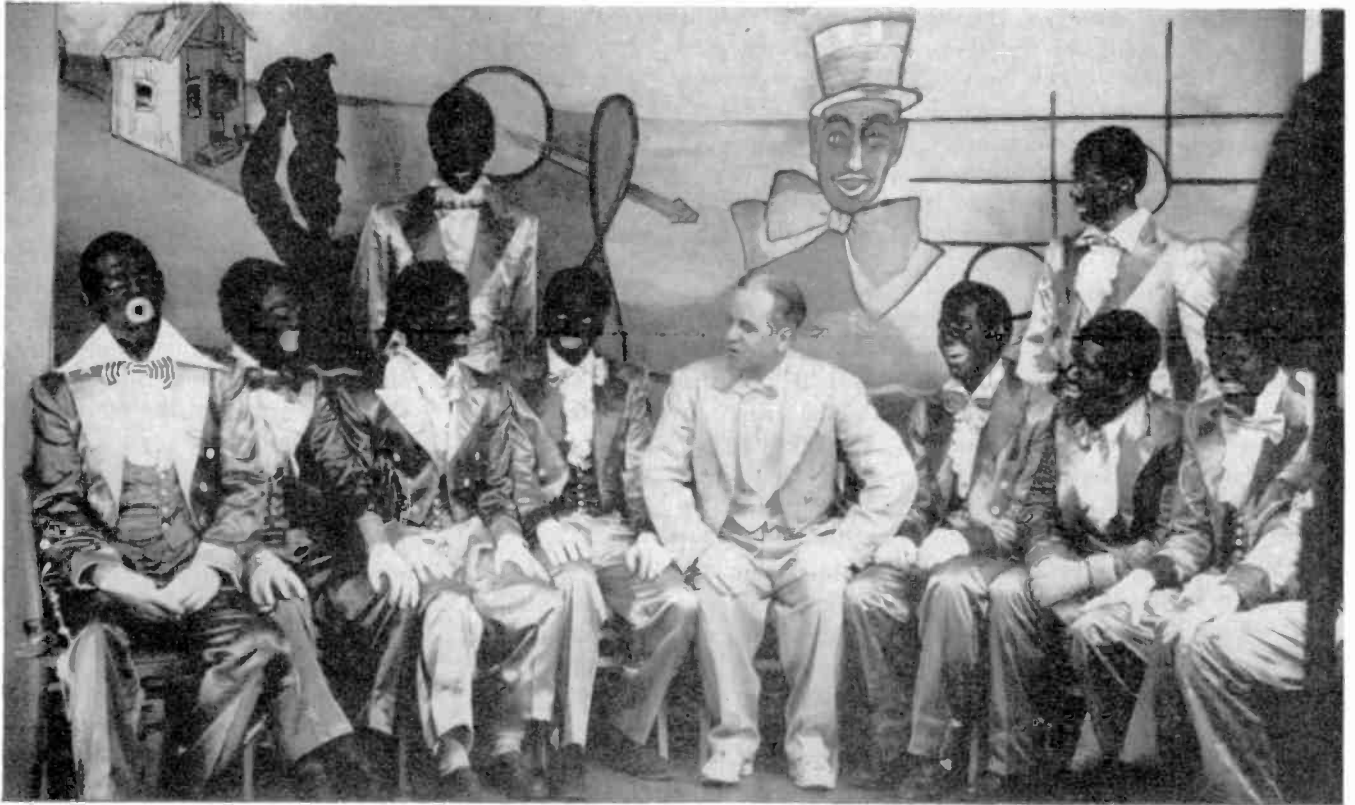
Program Costs

In spite of the high estimates of budgets and rehearsal time we were able to produce at one time a show with as little as 4 to 1 ratio of rehearsal to program time. As to budgets, our Minstrel Show with a cast of 14 was approximately \$500—this included costumes, scenery, musicians, etc. When I first started to produce video shows for WOR, my budget was in the vicinity of \$100, but because the talent at that time was willing to appear in the shows in order to learn about the new art, talent expenses amounted to only carfare.

Naturally when we can have more time for rehearsals and bigger bud-



Bob Emory, in recent show, "Power in the Pacific", interviewing Navy men who photographed prize-winning battle scenes of action in the Pacific. Pictures were exhibited at the Museum of Modern Art in New York. (Right) Navy photographer with prize-winning photograph.



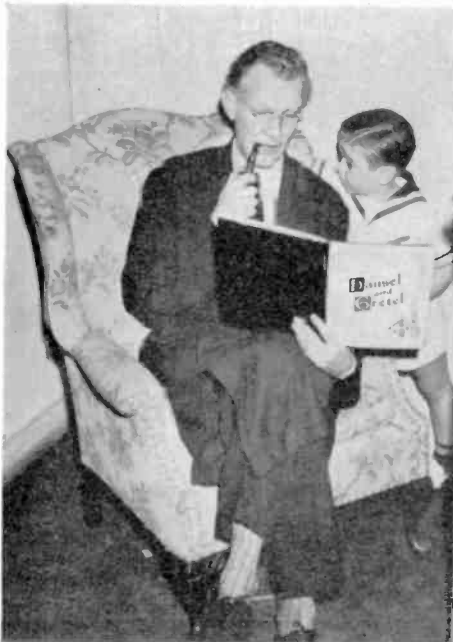
Black-faced comedians and Mr. Emory, as interlocutor, in "The Minstrel Show," presented on WABD (DuMont)

gets, WOR productions will improve but the basic ideas and showmanship can be all tried and tested now in spite of these obstacles. Stations, whenever possible, should experiment with television programming now. There's a lot that can be learned, not only in program production but also in studio design, production set-up, equipment, etc. All of

which will be invaluable when you start plans for your own television station.

Summing up, I would like to say that technically, the picture of today is far ahead of what it was a few years ago, and compares very favorably with good 16mm film. The set of the future is an unknown quantity. Whether or not it will be a projec-

tion set, or just what it will be, no one knows. One wag has said that "Television will have arrived when Emerson makes a portable set for about fifty bucks." The veracity of that statement is something for a crystal gazer to cope with. My problem is to keep the WOR standard on the television receiver in as good a reputation as I can.



Opening scene (Left) shows Father reading "Hansel and Gretel" to son. This is followed by fade-in on actual play (right).

Editing The News For Television

by EVERETT R. HOLLES

An analysis of telecasting the news pointing out its possibilities and types of maps used on WCBW (CBS). Everett Holles, veteran CBS newscaster, who has been in charge of television-news for almost a year on WCBW.

I suppose it's extremely dangerous, in view of the present-day limitations of television involving wartime curbs on technical developments and the actual application of these developments, to point to any type of program and say flatly that "this is good for television," or "that won't go over on television."

Therefore, until new equipment comes from the laboratories and is made available for commercial use, it's incautious to speak of any type of program as having been "proven" or "disproved". The thing is simply too great and too new for any of us to realize its capabilities.

However, I'm quite sure — and I believe that those who are closely following the programming in this infant medium will agree with me — that if any type of program can be said to be a "natural" for television, then it is news and news analysis. Not only those who are intimately concerned with television, its present and its future, but those of the present audience support this statement. Every survey of audience reaction which has come to my attention shows that owners of television receivers rate news programs, either at the top or very near the top of their preferences.

From the standpoint of the performer, the newscaster or analyst, I for one am convinced that the possibilities of this new medium are limitless — that we've barely scratched the veneer of this shiny new opportunity.

My time on the air is devoted mainly to news analysis, rather than to straight newscasting. Analysis, as compared with direct reporting of the news, is generally regarded as being much more difficult to put across to the listener. In an analysis, one is constantly striving to go back over — with the listener at his side — the various steps in the proper sequence and giving emphasis to the major developments. Then the analyst may "project" the situation, that is, at-



Everett R. Holles

tempt to show what MAY happen under the conditions he has outlined, tomorrow, next week or next month.

Use of Maps

I have felt many times, while on the air in standard broadcasting with an analysis, or while preparing an audio script dealing with a rather complex military situation — let us say, for example, the shifting of the Russian front — how much more effectively I could get my efforts across if I could be sure that even a small percentage of my listeners had a map before them as they listened. I've heard many of my colleagues, men such as Ned Calmer, William L. Shirer and Major George Fielding Eliot, express the same plaintive hope: "If I could only show them on a map . . ."

That, of course, is the No. 1 advantage of television news in these times. You do have maps, dozens of them.

You have large wall maps, sliding in and out of panels on the backdrop of the news-bay, or set. At WCBW these are called "still maps." There are dozens of them, for all parts of the world. There are at least a half dozen of them for Russia alone, and as many for Western Europe. One Western European map may show the

entire Western Front, and the German areas deep behind the front. The detail on the map gives emphasis to railroad lines, main highways, bridges, railroad yards and industrial centers, for this is the map we need to show the targets and range of a day of heavy Allied bombings. Another Western Front map may show only a small portion of this area, perhaps that lying between Duren and Cologne, but it will provide greater detail, such as rivers and the main characteristics of the terrain, for we will want to use this map when describing the advance of the American First Army in that particular region.

Battlelines, the direction of attack, army groupings and other essential information are shown on these "still maps" by heavy or dotted lines, arrows and various kinds of instantly recognizable symbols — all up to date, because the markings are altered as the bulletins come in over the wire service teletypes — even though the news program may actually be on the air while the changes are being made.

These "still maps" are the elementary means of presenting visual news. They came with the first television; they're still important and always will be, but they are not enough. It isn't sufficient for a television newscaster to stand before a wall map with a pointer and relate that the Russians have shifted their heaviest attacks away from the Kues-trin-Frankfort sector directly east of Berlin and up to the Pomeranian front toward Stettin, which indicates a wide-flanking operation aimed at tearing loose the northern anchor of the German defenses, and then an encirclement of Berlin from the north.

To be sure, that gives the listener a better idea than he would have if he sat with his eyes closed before his radio set and listened to the account, but it doesn't enact the news. It gives it nothing, beyond the personality and authoritative-ness of the speaker, in the way of drama or action.

Those of Columbia's television news staff realized the inadequacy of alternating between a speaker seated at a desk and talking directly into the camera and then standing and

following, with a pointer moving across a map, the text of his newscast.

How can this method be improved upon? Well, here is what has been done at WCBW. In itself, it adds a tremendous amount of drama and action to the presentation of the news. But, more important still, it opens up vast new possibilities.

Newscasting with Still Map

Let's take the news situation of which I have just spoken — the shifting of the main weight of the Russian attack away from the Kuestrin-Frankfort sector up toward Stettin.

We might open with the camera on the newscaster while he gives an overall opening to the news from the Russian front, possibly a late order-of-the-day from Premier Stalin. Then to the wall or "still" map where, with pointer, the newscaster shows, in turn, where each of the various Russian armies is heading. Symbols and battlelines would facilitate the explanation. Then, coming to the Kuestrin-Frankfort sector, the newscast would briefly explain that the Russians had turned north, up toward Stettin and the Baltic. By now, the audience has well in mind the relation of the Stettin sector to the remainder of the long Russian front.

From the "still map," and while the newscaster is still speaking, there would be a slow "dissolve" and on the screen would come another map of the identical area, but this time an animated map.

Animated Map

For television news the animated map is the greatest thing that exists. I am sure that there will be even more in the future, ones with great powers of visualization.

The animated map is just what the name implies; a map on which armies move, bridges are thrown across rivers or bombed out of existence, battles shift back and forth, cities and strongpoints are encircled, shaded areas follow across the map to show areas of occupation, and arrows and other symbols of contrasting types show not only what has occurred but what MAY occur next. And all this in a carefully done presentation which avoids confusing the audience as to what has already been

accomplished and what lies in the realm of probability or possibility.

For those unfamiliar with Columbia's animations, I can perhaps best explain them by comparing them with the come-to-life maps which one sometimes sees in the news reels.

Not only have these animations been of great benefit in giving a picture of the movement of the war on the land fronts, but the action on the Pacific naval fronts as well. With a static map, it's next to impossible to describe the course of a naval action. But on the animator, with tiny ships and arrows tracing the movement of fleets, task-forces and planes, the most involved naval battle can be brought to life.

However, just maps and animations are still not enough. We may show graphically on the animator the crossing of the Oder by the Russians, or how the landings on Iwo Jima give us a base for land-based aerial attacks on Japan and for the slicing of Japan's supply line to the south, but there's also the human side. Just how do the Russians cross a river barrier such as the Oder? What's it like storming ashore on Iwo Jima in the face of murderous Jap fire? Mere dialogue accompanying the animation can never tell these stories. So, from the animator, as we bring the Russians up to the Oder, we cut to the latest news pictures from the Russian front . . . and perhaps a series of six or eight photographs showing, step by step, how the Red Army goes about winning a bridgehead. The day will soon come when these actual action pictures, amplifying the animation, will be provided not by photographs, but by motion picture shots woven into the newscast.

You may be thinking, about this time, that all this is fine now, when the bulk of the news is about the war and therefore maps are essential to a presentation of the news. You may say, "sure, maps are ideal for television; but what about after the war when the news will deal heavily with such problems as employment, war debts, local affairs and other matters which don't provide the use of maps to back you up."

Well, we've thought about that, and we're not waiting until after the fighting is over, until the war maps

are out of use, to do something about it. The news won't let us wait.

Each week on WCBW we are devoting a good portion of our 15-minute newscasts to matters which do not concern the war, or perhaps I should say, do not concern the actual military developments of the war.

Other Features of Animated Map

We find that we are able to make a "presentation" of the work-or-else bill, showing the needs of the armed services and of industry in animation, building up the manpower reserve of the army on the one hand, and showing the shortages of manpower in another. We're able to indicate the critical areas of manpower in the United States. And, by means of picture diagrams and symbols, we're able to show, in a manner instantly understandable, the outstanding differences between the House and the Senate proposals for work-or-jail or work-or-fight legislation.

Take rationing as an example. We can use the animator to present in simple, understandable form, the available supplies of a certain type of meat, and the shortage of another type. Then the camera may shift back to where the newscaster sits with an array of steaks, sausages, etc., in front of him, either wax props or the real thing, and show you just how your new allotment of red points will work out under the new point values. He may even cut off a piece of steak in front of your eyes to illustrate how much less steak you'll have.

We were able recently, by extremely simple but effective visualization, to give an explanation of the cigarette shortage. The newscaster took out a pack of cigarettes, (for which he had posted a bond with the prop department), and showed, by the simple method of removing cigarettes from the package as he talked, what part of this country's cigarette production was going overseas, what part remained here, and what part was estimated by the government officials to have been diverted into black-market channels. News pictures and pictographs symbols completed the spot.

Yes, I'm quite sure that television news will retain all its advantages, even when the war maps are put aside.



Opening scene of couple reminising their younger days in the circus. Fade-back to circus days years ago follows this scene.

Behind the Program

An analysis, by Bud Gamble, director, of the preparation that went into "Circus Folks", the Red Goose Shoe Program produced by the Westheimer Company.

As in the production of any play, story conference came first. In this first conference a general format was outlined and the various tasks assigned to the members of the group.

The program was to be a history in ballet form of the Ringling Brothers Barnum & Bailey Circus. We were to begin with a narrator, an old clown in the attic of his house going through an old circus trunk. As he takes a clown suit from the trunk, he glances up and notices the audience watching him. His reminiscences concerned the early days of the circus and his own special recollections of a romantic interlude in his life. The narration was to continue through the ballet-pantomime dramatization of this interlude.

Even in working out the first general idea for this show, or for that matter, any type of telecast, the limitations of the television camera and studio and the various idiosyncrasies of the camera, such as depth of field and reaction to color, had to be kept in mind. The number of characters possible for the size of the stage, the amount of action those individuals might be allowed was considered. We knew that the action had to be planned so that the dancers would be within the frame of the picture at all times when the camera was focused on them. Besides keeping them within the frame it was necessary to plan the story so that one dancer would at no time interfere with the movements of any other, un-

less required to do so by the story-line. Any number of actors may be used in a telecast but the story must be planned to bring only a limited number into action at the same time. Unless your telecast is worked out within these bounds a badly integrated show will result. We had, in all, 12 performers in this cast. Because the first scene was planned to involve only the old clown and in each ensuing scene in the development of the main story-line only two or three of the performers were pivotal points of the action. For example, Irene, the leading lady, and the Juggler began the action, then Irene and the bareback rider and, following that the tumbler, then the clown.

The story of this show required two scenes—that of the clown in the attic, played to one side of the studio and that of the circus itself on the larger stage.

Research for an accurate picture of the circus background and historical data on the circus was necessary at this point and the files of the public library and various other sources were consulted for a bibliography of pictures and articles. Our script writer got busy with the outlines format and collected material and wrote a rough draft of the running narrative which was to form a background for the action. It took several more conferences before all the rough spots in even this dialogue could be ironed out and synchronized with the proposed choreography.

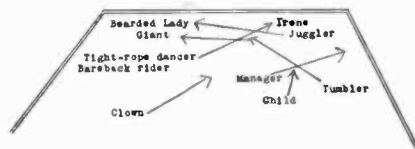
The settings were designed with an eye to dramatic action. Since the television camera has little depth of field the settings were painted in perspective and the various shades of gray laid on in such a way as to give the impression of vast distance and spaciousness—a three-dimensional quality.

Costuming, too, needed a knowledge of how each color would appear on the television screen in order to plan for proper contrast and emphasis between characters and against settings. Sometimes an actor will fade almost completely from the scene because of an improper choice of color in his costume.

Next the music was selected and the parts in the action assigned our dancers. The music was chosen to blend with the mood of the action as well as to fit each performer's part. It indicated which dancer had the major part in the action at that moment. We generally allow our dancers to maintain their own individual styles and interpretations. However, the circus story involved more than the simple execution of dance routines and the steps were arranged by our choreographer, though still maintaining the individuality of the dancers, to tell the proposed story. Our leading characters, the bareback rider, the clown, the juggler and the female tumbler performed a pantomime routine in which the clown and the juggler vie for the affections of the bareback rider, while the tumbler unsuccessfully flirts with the juggler. At the conclusion of the story the clown wins the lovely bareback rider and the juggler is forced to seek solace with the at last victorious tumbler. The entrance of the clown; the ridicule he causes; the

abrupt halt while the others laugh at his predicament in dropping his suitcase; the juggler's attempts to interest the bareback rider; and the final flirtatious dance of the bareback rider as she chooses her mate, then dances with him, were all indicated in the music through changes in mood and tempo.

Before a camera rehearsal was thought of, though there were two or three preliminary rehearsals, the movements of each performer were



Director's sketch of stage-movement

mapped out and diagrammed as carefully as any military maneuver. No one was to sit idle at any moment, whether the cameras would be focussed upon him continually or not—thus avoiding any embarrassing pause of out-of-character activity if the camera should be turned upon him at any point of the action. By the time the program was before the cameras everyone knew exactly what to do at every moment. Nothing was left to chance. Entrances and exits

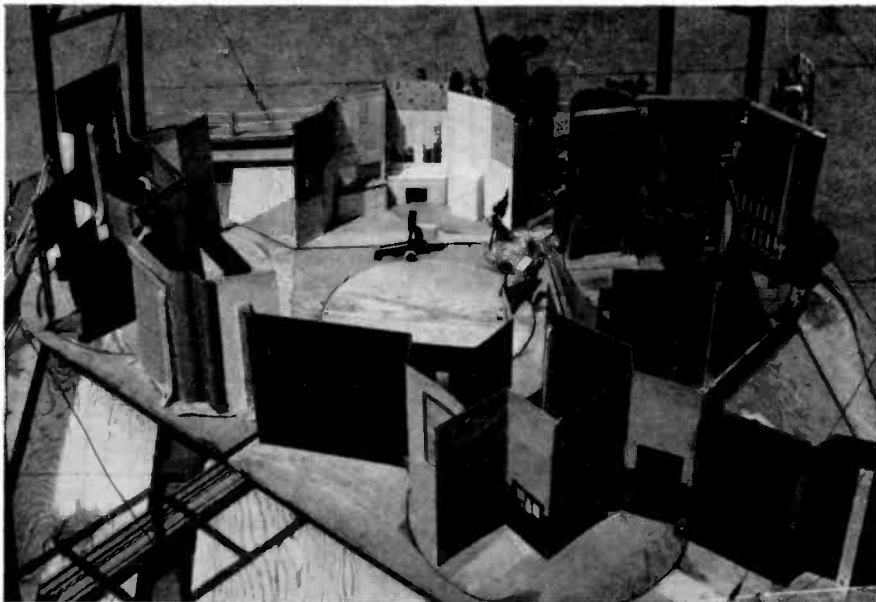
and crosses were drawn-up in diagram form for every change in the story action. Each performer had a separate sheet detailing his own movements and bits of business, as well as a complete script to give him an idea of the unit as a whole. Although most of the dancers were on stage during nearly all the action, only two or three were really performing at any one time. The remainder indulged in more minor activities that kept them upstage or downstage in a limited space, as the motivation demanded—thus leaving the stage free for the development of the story-line. Similarly a script was set-up on which the camera action of scenes could all be planned in advance.

With all the general planning completed, the narrative script synchronized with the choreography, each integral part of the entire show timed to the split second for every change in pantomime and dancing, the final rehearsals could proceed, the final details and minute rough spots smoothed out before the production went, at last, in front of the cameras.

A 16 mm. film of this show was produced by Foto Sound Studios of N. Y. and will be televised in Los Angeles and Chicago under the sponsorship of Red Goose Shoes.



Youthful ballet dancer is coached by ballerina for a circus performance with circus folks watching with approval



General view of setting around the central shooting area. There are four settings shown here, ready for action, and five more ready to be oscillated into position as desired

Continuous Televising Stages

by GEORGE N. KRAMER

Revolving stage idea as designed by the Graeme Company. One in a series on studio design.

A television stage system capable of taking practically any program on the air today and picturing it in continuity form in the same time now required to broadcast in sound promises to solve one of the difficult problems of telecasting. A twelve-second period, with a combined twenty-five-foot movement, for example, is all that is required to change completely six to ten settings at one and the same time, should this ever be necessary.

By means of this unique arrangement programs ranging from five minutes to five hours can be handled with equal ease, or a succession of varying programs for twenty-four hours a day. The number and variety of settings can be almost unlimited.

The basic principle of what is known as the Graeme System of Television Production is surprisingly simple. It is generally known that all movement is executed through the medium of only two universal figures, or the combination of both, viz., any part of a straight line or of a circle. Therefore, the movement of these two figures simultaneously makes possible any form of change and arrangement.

In order to make practical use of this fact, it was necessary to introduce a figure to carry these movements and to make a complete change from any angle in the least time and space, irrespective of the size of the setting. After much experimentation, the six-sided polygon stage, as represented by any one of the four oscillating stages, shown in the accompanying diagram, was formed.

These four oscillating polygonal stages, set on four sides of a square central platform, constitute an endless chain of complete changes. These stages do not move out of their own area or orbit, but they can be shifted in such manner that it requires no longer time to change a sixty-foot setting than one only six feet wide. Likewise, since the stages are in conjunction with one another, a complete change of setting of any size within their combined structural proportions is possible.

All this can be achieved noiselessly by continuous rotary or alternate action. Each stage can be isolated by sound curtains between sections and used as individual studios, each with its own lighting, sound, scenic, and complete changing unit.

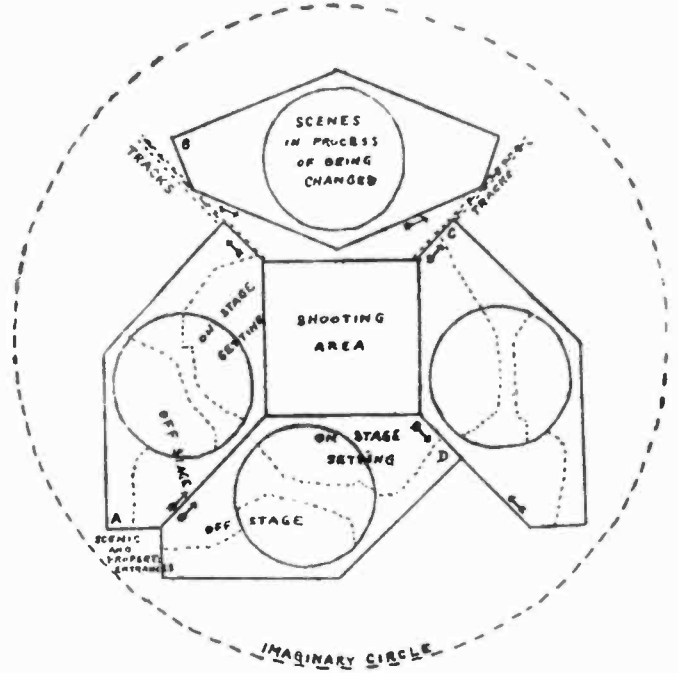
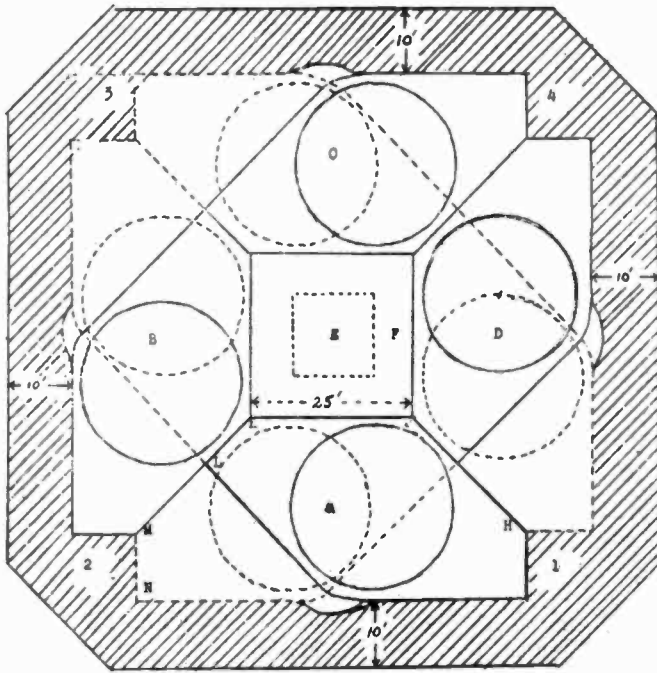
The polygonal stage, as shown in the diagram, can change completely a setting, occupying approximately 350 square feet, by one single oscillating movement of only twenty lenial feet, combined with the rotary movement of the circular table within. The average time of this change is only twelve seconds.

Like the wheel, the stages can be constructed to any size, but the design cannot be improved for the purpose. The secret of this highly efficient combination is the square in the center and the shifting of the oscillating movement at a forty-five degree angle. If this angle is changed in any manner, the arrangement immediately loses its value. As it is, it allows everything continuity production demands, within the limits of the studio.

It will be observed that when the stages are oscillated to one or the other side of the two positions, the distance between the revolving tables vary. These variations, as well as the extra center revolving table, were designed to allow the scenic designer and those staging the production a greater facility for arranging the settings so as to secure the maximum mobility for the access to close-ups and angle shots. By dividing the settings in this manner, it is possible in a matter of a few seconds, due to the individual oscillating and circular movements, to break the set, obtain a shot from any angle, and return the setting again to its former position.

A great deal of the speed and efficiency of this method may be obtained by the use of scaled models. The various member of the technical staff can previously work out all the necessary angles, distances, camera positions, and stage movements, before the final plans are sent to the studio floor. If the studio is properly arranged, speed, efficiency and silence are possible at all times.

The major portion of the lighting of the stages is carried by a central lighting system, especially designed and constructed to give the utmost in lighting to all settings, in whatever position they might be, as well as taking care of all frontal shots. Each unit is serviceable for the stage



A, B, C, D—the four oscillating stages, with revolving sections.
 E—Overhead director's booth, switchboards, lighting panels.
 F—Square camera stage.
 J-K—in position for telecasting. J-H in preparation. When K-L shifts to M-N, and J-H to J-K, then settings will be prepared on K-M. Similarly for all four stages. Shaded area represents 10-ft. platform around stage arrangement.
 1, 2, 3, 4—loading zones or stage entrances.

Revolving unit faces "shooting area." Each of the four sections is occupied by a double-action oscillating stage. Each stage has on the average of two settings, making approximately eight in all. Off-stage settings (A,D), can be changed without interference with settings in action on other parts of the same stage.

on either side of it, as the action may move in one or the other direction. Overhead, are constructed the ordinary theatre borders.

Directly above the central square platform, where the cameras are located, is the director's booth. By looking at his monitoring screen the director can follow the action of the

scenes and coordinate and guide the performance.

Finally, at each corner of the stages there is a loading zone or stage entrance. This permits the stage crews to prepare new settings while action is taking place or program being televised on some other part of the same polygon. This makes

possible a continuous series of scenes and programs.

This system can take practically any program on the air today and televise it in continuity form in the same time that it now requires to go over the air. It constitutes a combined movement over the shortest possible distance with a maximum of shooting area.



Living room interior on stage at left, as shown in general view of settings, requires only the action of a second camera to bring it immediately on to the screen. Scene is 25 feet across and 14 feet deep.

SURVEY OF PLANS OF STATION APPLICANTS

In spite of the large amount of recent wordage, both spoken and written, regarding the Federal Communication Commission's recent frequency allocations for television, a distinct feeling of optimism and a readiness to go ahead with television planning, was reflected in the results of a poll conducted among the present television applicants by TELEVISION magazine.

Applicants in fifteen states have filled out the questionnaire sent them, indicating the results shown below.

Allocations HAVE affected tele plans.	11.8%
Allocations HAVE NOT affected plans.	88.2%

Upon analysis of the replies stating that a change in plans was necessary, it was discovered that these resolved themselves entirely to the conclusion that they would have to apply for a different channel. Comment among this group of applicants was that . . . "It will be necessary to change our application to another frequency" . . . "Since we had applied for channel No. 1, we must now change our application" . . . and . . . "Despite the need for changing our application, the proposed allocations

seem fair. We believe that the findings are helpful to the future television industry."

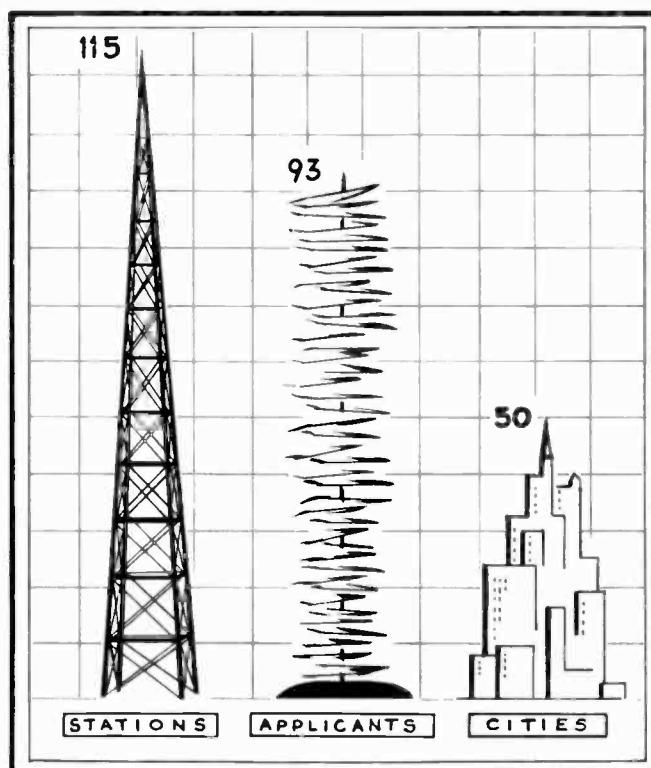
Comment among the majority of those polled, the 88.2% who were not contemplating any change in their plans, ran along lines expressing satisfaction with the proposals, and confidence in the future of video, both from the FCC standpoint, and from the soundness-of-the-medium point of view. Some of the comments received were: "Proposed allocations satisfactory" . . . "We are entirely in accord with the FCC proposals" . . . "Our station is not on the air, its construction having been halted by the recent 'freeze', but we plan to proceed as soon as equipment is available."

Several applicants, while indicating that they planned to go ahead in the lower frequencies as soon as possible, commented on the FCC's proposals for experimental work in the 480 to 920 mc segment of the spectrum as follows: "Believe that 480 to 920 mc will be the future permanent home of television" . . . "We think the trend to higher frequencies is a step in the right direction for many reasons, among them being the possibil-

ity in the spectrum of locating the transmitter out of the downtown area, possibly in the outskirts of the city" . . . and . . . "At present we cannot see much disadvantage in the allocations with respect to FM and television. The very high frequencies for remote pick-up television should offer the advantage of very narrow beam antennas, thus aiding the signal-to-noise ratio".

These results would indicate that the television picture, as a whole, was little affected by the FCC's proposals, and that what effect there was, was largely favorable. By and large, those who have already made application, and those who are planning to take this preliminary step, seem to have a great deal of confidence in both the future of video and in the good judgment of the Commission. A healthy interest is being manifested in all phases of the medium, and a small but constant flow of applications is being reported by the FCC, even while the final results of the frequency proposals are still undetermined.

This survey is a definite indication of the current trend of thought and planning by the present station applicants.



Applications for new television stations now pending before the Federal Communications Commission have reached a total of 115, as indicated by the chart at left. Interesting to note is the fact that these 115 applications have been filed by a total of 93 potential television broadcasters in 31 states and the District of Columbia, and would provide primary area coverage to millions of prospective home set owners in 50 major urban areas in the United States.

Obviously, while the largest cities have more than a sufficient number of applications filed, there is still plenty of room for new stations in other, less densely populated areas. It is perhaps a fortunate fact that television transmitters, at the present time, are limited in their range, thus making possible a greater number of individual stations than there would be if the range was comparable to radio.

Indications of the active interest in both experimental work and creation of networks are given in the FCC's report that there are also many applications currently pending for experimental, and video relay stations.

TELEVISION IN REVIEW

High spots in the news were the official showing of RCA's post-war projection receiver (see page 31) and the decision of the British government to go ahead with television on 405 lines in the lower frequencies which amounts to an endorsement of FCC's proposed allocations. The government controlled BBC would certainly have gone ahead with high frequency television if it had been ready.

Advertising

WNBT (NBC), New York.

Bulova Watch Co. through Biow Co.; Botany Worsted Mills through Alfred J. Silberstein, Inc.; Gillette Safety Razor Co., for razor blades and brushless shaving cream through Maxon, Inc.; Firestone Tire & Rubber Co. through Sweeney & James; Aetna Affiliated Companies, insurance, direct; RCA Victor through J. Walter Thompson Co. and Pan American World Airways through J. Walter Thompson.

WABD (DuMont), New York.

Liberty Music Shop, direct; Park & Tilford for Tintex through Charles M. Storm Co.; Lever Bros. for Rinso, Lifebuoy and Spry through Ruthrauff & Ryan, Inc.; R. H. Macy & Co. through RKO Television; Red Goose Shoes through Westheimer & Co.; Alexander Smith & Sons Carpet Co. through Anderson, Davis & Platte; Cluett Peabody & Co. through Young & Rubican; Carter Products, Arrid Cream Deodorant, through Buchanan & Co.; WOR New York, direct; Blue Network, direct; Television Workshop, direct; WNEW New York, direct.

WBKB (B&K), Chicago, Ill.

Commonwealth Edison Co.; John Morrell & Co., Ottumwa, Ia., Red Heart Dog Food through Henri, Hurst & McDonald; Marshall Field & Co., direct.

FCC

Applications

Debs Memorial Radio Fund, Inc., New York, operators of WEVD, New York, construction permit for a new commercial station, Channel 17, 282-288 mc with ESR of 7400.

Sherron Metallic Corp., Brooklyn, New York, (resubmitted), construction permit for experimental station, Channels 6 to 18, 96-294 mc, power of 10 kw.

Hearst Radio, Inc., Baltimore (amended), construction permit for commercial station, Channel 6, 96-102 mc with ESR of 1800, amended rechange in antenna system.

Raytheon Manufacturing Co., Chicago, construction permit for new commercial station, 44-50 mc (as specified in the proposed allocation) with ESR of 6360.

Actions

Metropolitan Television, Inc., New York, W2XMT, modification of construction permit (B1-PVB-40, as modified, which authorized a new experimental television broadcast station) for extension of completion date from 3-31-45 to 6-30-45.

Gus Zaharis, S. Charleston, W. Va., W8XGZ, modification of construction permit (B2-PVG-103, which authorized a new experimental television station) for extension of completion date from 4-1-45 to 10-1-45.

William B. Still, Jamaica Radio Television Co., Jamaica, L. I., N. Y., W2XJT, modification of construction permit (B1-PVB-100, which authorized a new experimental television broadcast station) for extension of completion date from 4-1-45 to 6-30-45.

The Crosley Corp., Dayton, Ohio, construction permit for a new commercial television station to be operated on Channel 4 (78-84 mc) with ESR of 1920.

Raytheon Mfg. Co., Chicago, construction permit for a new commercial television station to be operated

on 44-50 mc. (as specified in reallocation) with ESR of 6360.

Philadelphia Daily News, Inc., Philadelphia, construction permit for a new commercial television station to be operated on Channel 9 (180-186 mc) with ESR of 770.7.

Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa, construction permit for a new commercial television station to be operated on Channel 3 (66-72 mc) with ESR of 1227 and 1062.

Scriptis-Howard Radio, Inc., Cleveland, construction permit for a new commercial television station to be operated on Channel 2 (60-66 mc) with ESR of 1720.

Philco Radio & Television Corp., Philadelphia, new channel 13-14, area of Cen. and N.E. Maryland, S.E. Pennsylvania and District of Columbia. Construction permit for new experimental television relay station, A5 A3 emission 40 watts visual, 40 watts aural. Also for W3XPD-E-F-G-H-I-K, modification. Construction permit to change power from 15 watts visual, 10 watts aural to 40 watts visual and 40 watts aural, change locations, type transmitter and antenna and extend commencement and completion dates.

FCC Hearings

Following oral arguments by experts on the FCC's proposed television frequency allocations in Washington last month, the FCC adjourned to consider the arguments and suggestions for improvement presented. Commission is expected to announce final allocations within the next week or two. Following is a brief summarization of the oral hearing.

T.A.M. Craven, vice-president of the Cowles Broadcasting Co., and Benjamin Adler, facilities engineer of the American Broadcasting Co., supported the Commission's television allocations. Mr. Craven said that most broadcasters do not wish "to be stampeded into television." If the higher definition service is available in a reasonable time, there is no doubt as to which type of service the public will choose, he said.

William Roberts, counsel for the Television Broadcasters Assn., concurred wholeheartedly in the FCC allocations. A possible plan of assignment of the 12 channels in the lower

part of the spectrum proposed by the FCC was presented by Mr. Roberts. See chart on page 18.

Stations

WNBT (NBC), New York.

WNBT last month took the lead over all other stations in the number of hours on the air. Station televised almost 79 hours of programs, including 30 hours of test patterns. Sponsored shows totalled some 17 hours, with about 31 hours for sustaining shows and 23 hours for field pickups.

One of the most successful series of live talent productions presented on WNBT, was the recently concluded adaptation of Cornell Woolrich's novel, "The Black Angel."

According to Ernest Colling, NBC television producer, the book was a "natural" for television production, inasmuch as it was a psychological drama and therefore perfectly adaptable to the new medium. Briefly the story involved a woman's search for a murderer, her husband having been arrested as a suspect. Each of the four episodes portrayed the woman attempting to track down each of the four other possible suspects. Prominent stage and radio actors were featured in the show.

Recently a special 90-minute program was relayed to WRGB (GE). Originating in the studios of WNBT, program included three specially-adapted ballets by Leonide Massine; newsreels of the American landings on Iwo Jima Island; the second and final episode of a mystery show, "The Perfect Alibi"; and a fashion program, "Annual Assembly of Famous Fashions" presented by Gimbel Bros.

Premier telecast of the Pan American World Airways program was presented last month. Program included a live-talent production and a film titled "Rio de Janeiro." On April 7, WNBT is scheduled to begin a series of Saturday night children series. The one-hour show will include live talent and films.

WCBW (CBS), New York.

Station is now operating Wednesday and Thursday nights instead of



Mark Woods, president of the Blue Network, Johnny Olsen, mc of the Blue's tele show, and Robert Pearce, vice president of G.E. at the Blue's tele debut over WRGB

Thursday and Friday evenings. Current time periods of both nights remain the same, 8-10 p.m. With this shift in operations, some changes will be made in program format, according to Gilbert Seldes, director of CBS television programs.

A series of Thursday night boxing matches originating at the studio were recently inaugurated with amateur boxers representing various New York athletic clubs affiliated with AAU participating. Bleacher seats as well as the ring itself, are erected on boxing nights.

The Wednesday schedule includes special programs in addition to established WCBW features. Greater variety of programs and a number of experimental shows are also planned for the near future.

Recent studio programs included a show with Dunninger, master mentalist of stage and radio; fashion program produced in collaboration with *Mademoiselle* magazine; a number of public service shows: "Missus Goes A-Shopping" with John Reed King and a fashion show with the prominent model photographer, Bruno of Hollywood. A new series of monthly programs in the field of educational television was presented on March 22 by WCBW with the cooperation of the Board of Education of New York City. Program, "There Ought To Be A Law", a discussion program patterned after Congress, features a group of students from 15 New York City high schools as "law-makers."

WABD (DuMont), New York.

In expanding its television activities in line with the opening of its larger studio, DuMont has presented a number of new programs. Outstanding shows were "DuMont Focuses Its 'Ike' on Sports"; a group of dramas presented by the DuMont Players; the WOR Brownstone Theatre Group; the Blue Network program, "On Stage Everybody". Other programs include the Lever Bros. Show, "Thanks for Looking"; Macy's "Teleshopping with Martha Manning"; "Circus Folks," produced by Bud Gamble for Red Goose Shoes; the Carter Products Arrid Deodorant mystery show. On the latter, sponsor intends to present several different types of programs during the series in an effort to determine which type brings the most favorable audience response and to define the types of audiences responding to the various programs presented. Station was on the air on the average of seven and a half hours weekly,—Sunday, Tuesday and Wednesday.

George Lowther, radio writer and producer, has been appointed executive producer of the DuMont station, WABD New York. Mr. Lowther will supervise all programs, pass the experiences of the station's programming department on to agencies and incorporate it into sustaining programs. Louis Sposa has been appointed manager of the program service department of the station being responsible for the assignment of program and rehearsal time and



Herbert E. Taylor Jr., has been appointed Director of Transmitter Sales for DuMont

AND NOW... the General Electric

INTRA-TEL SYSTEM

Television by wire for business, education and industry

The G-E Intra-Tel system can make a store the show place of a community. With it, it will be possible to televise and transmit living pictures throughout the store and in display windows. It is a new sales power that will increase customer traffic on every floor and in every department.



From the television laboratories of General Electric has come a powerful new selling aid for business, a dynamic medium for education, an effective tool for industry. It is G-E Intra-Tel—a television-by-wire system that can carry high-quality pictures and sound and reproduce them anywhere within the range of the system.

● Intra-Tel has great potentialities. In merchandising it can increase store traffic. With an Intra-Tel system dynamic demonstrations can be displayed simultaneously on every floor and in show windows. In education, the Intra-Tel system can bring special demon-

strations, lectures, and motion pictures to every classroom. In industry the Intra-Tel system can provide the means for coordinating activities throughout a plant, observe production progress, to peer into inaccessible places or to observe extremely hazardous operations. The Intra-Tel system uses no transmitter and its installation thus requires neither FCC license nor government approval.

● A G-E Intra-Tel system includes one or more portable pickup cameras, one or more sound microphones, and a control and monitoring console. The entire system is designed so that both picture

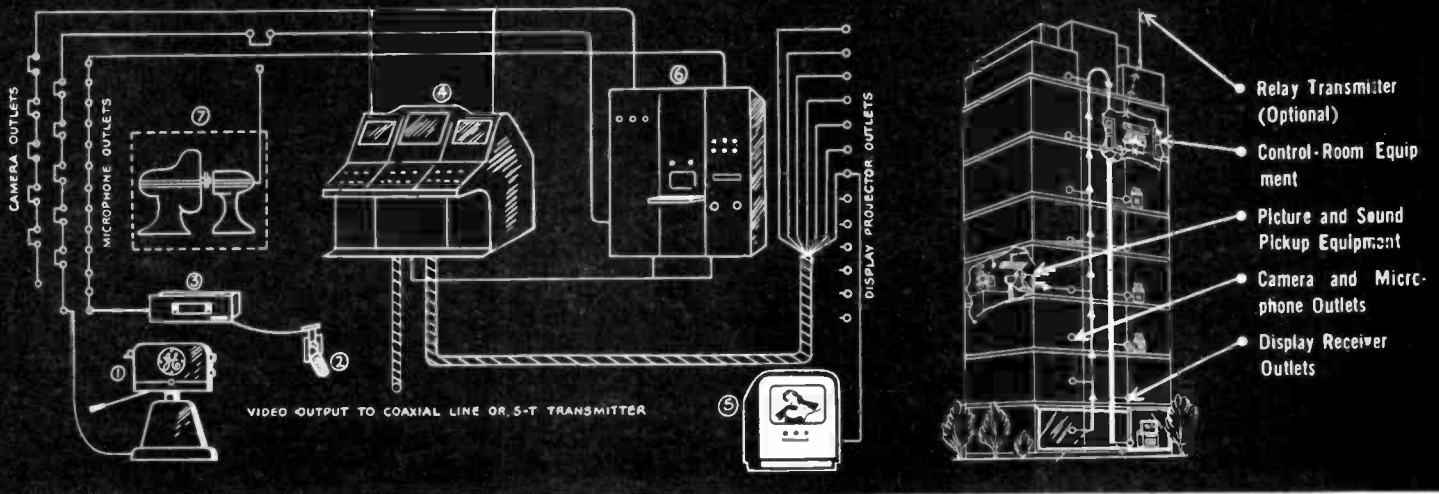
and sound are fed by cable to any number of home-type or display receivers. If desired, a motion picture projector and film pickup camera can easily be added to the system. Provision can also be made to link the system to any outside local television broadcast station by means of coaxial line or by radio relay.

● For details on G-E Intra-Tel systems and television broadcast systems, see your G-E broadcast equipment representative, or write for the booklet "Television Broadcasting Post-War," *Electronics Department, General Electric, Schenectady 5, N. Y.*

STUDIO AND STATION EQUIPMENT • TRANSMITTERS

GENERAL  ELECTRIC

156-D1-6912



A typical G-E Intra-Tel system. With the Intra-Tel system, portable television cameras and sound microphones can be operated from any place in store or plant. Pictures and sound picked up by cameras (1) and

microphone with microphone amplifier (2) and (3) are fed by cable to the control and monitoring console (4). Outlets at the console make it possible to feed picture and sound signals by cable to any number of

display receivers (5). Amplifiers and pulse generator (6) maintain signal levels and synchronize scanning, respectively. Film projector (7) is used for motion pictures.

Plan to visit General Electric's great television proving ground — WRGB at Schenectady. Every Wednesday and Friday are "open house" days. Write for the folder, "How to get to Schenectady," or see your local G-E broadcast equipment representative.

Establish a delivery priority now on your future television equipment. General Electric offers you the "G-E Television Equipment-Reservation Plan." Write for your copy. It explains how you can assure yourself early delivery of your television equipment.

Hear the G-E radio programs: "The World Today" news, Monday through Friday, 6:45 p.m., EWT, CBS. "The G-E All-Girl Orchestra," Sunday 10 p.m., EWT, NBC. "The G-E House Party," Monday through Friday, 4 p.m., EWT, CBS.

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FM • TELEVISION • AM

See G.E. for all three!

supervision of camera crews, production assistants and guest relations. Bob Bright was appointed art director.

Eleanor Balz is establishing a motion picture department for the station.

Each of WABD's two studios now has a supervising engineer responsible for the equipment and its operation in the studios. Scott Helt is the supervising engineer for Studio A and Otis Freeman for Studio B.

WBKB (B&K), Chicago.

For the first time in television, a commercial designed to fill in the air time between studio programs was recently tested on the station. The three and a half-minute commercial, aired from the projection room, entitled "Herkimer Wins The Red Heart," consisted of a slide film synchronized to a recorded musical background and narration, with the video part cartooned. To further test the commercial, post-cards were mailed to Chicago television set-owners who were asked to express their views and comments and return cards to the station. Set up on the basis of a national spot announcement, it may later be used on WBNT (NBC) and WABD (DuMont), New York. Commercial was produced for John Morrell & Co., Ottumwa, Ia., manufacturers of Red Heart Dog Food by Henri, Hurst & McDonald, Inc., Chicago, agency handling the account.

The Navy, as part of a recruiting drive, has been presenting a group of variety programs. Shows were also presented on behalf of the Marines and the American Red Cross. Airing live programs, station was on the air some 23 hours for the month.

WPTZ (Philco), Philadelphia.

On the air about 24 hours during the month, station telecasts programs two hours per evening, three nights weekly. Featured were OWI shorts and public service programs. Test charts and experimental programs were televised on the Philco experimental outlet, W3XE. Station continues to operate without studio facilities for its programs.

WGAO (Don Lee), Hollywood.

Outstanding program of the Don Lee station was a show featuring

TBA Station Plan For 140 Cities

Metropolitan Districts	Sales Rank	Population Rank	Radius	Stations
New York City	1	1	55	7
Chicago	2	2	55	7
Los Angeles	3	3	55	7*
Philadelphia	4	4	55	4
Boston	5	5	55	5
Detroit	6	6	55	5
San Francisco-Oakland	7	8	55	6
Pittsburgh	8	7	55	5
Cleveland	9	10	55	4
St. Louis	10	9	55	5*
Minneapolis-St. Paul	11	12	55	5*
Washington	12	13	55	4*
Baltimore	13	11	55	3
Buffalo-Niagara Falls	14	14	55	5
Milwaukee	15	15	55	5
Cincinnati	16	16	55	4
Kansas City	17	18	55	5
Providence	18	17	55	1
Seattle	19	24	55	4
Hartford-New Britain	20	22	55	3
Houston	21	21	55	4*
Portland, Oregon	22	30	55	5*
Albany-Schenectady-Troy	23	27	55	5
Indianapolis	24	23	55	5
Atlanta	25	25	40	4
Denver	26	32	40	5*
Dallas	27	33	40	4
Rochester	28	28	55	3*
Columbus, Ohio	29	35	55	4
Scranton-Wilkes-Barre	30	19	55	1
New Orleans	31	20	40	5*
Louisville	33	26	40	4
Toledo	34	37	55	1*
Akron	35	36	55	1
Youngstown	36	34	55	1
Memphis	37	39	40	5*
Miami	38	50	40	5*
Omaha-Council Bluffs	40	45	40	4
Worcester	41	44		0*
Birmingham	42	29	40	4
Dayton	44	47	20	2
Lowell-Lawrence-Haverhill	45	38	40	1
Syracuse	46	48	40	4
Norfolk-Portsmouth-Newport News	47	40	40	33*
Richmond	48	51	40	4
San Diego	49	49	40	4*
San Antonio	50	42	40	4
Fort Worth	51	57	40	33*
Oklahoma City	52	53	40	4
Bridgeport	53	54		0*
Sacramento	54	74	40	4
Nashville	56	52	40	4*
Grand Rapids	57	55	40	4
Salt Lake City	58	58	40	4*
Des Moines	59	68	40	4
Trenton	60	60		0*
Tampa-St. Petersburg	61	56	40	4*
Canton	63	59		0*
Flint	64	67		0*
Tulsa	65	66	40	4*
Jacksonville	66	63	40	4*
Davenport-Rock Island-Moline	67	70	40	4
Utica-Rome	68	61	40	2
Peoria	69	73	40	3

Harrisburg	70	71	20	0*
Spokane	71	84	40	4*
Duluth-Superior	72	75	40	4*
Tacoma	74	76	40	3*
Binghamton	75	81	20	2*
Chattanooga	76	64	40	4*
Saginaw Bay City	77	77	40	4
San Jose	78	91	40	1*
Fresno	79	110	40	4*
South Bend	80	60	20	0*
Fort Wayne	81	83	20	4
Atlantic City	83	108	40	1
Phoenix	84	94	40	4*
Wichita	86	92	40	4*
Knoxville	87	78	40	4*
Charleston, W. Va.	88	86	40	4
Portland, Maine	89	105	40	3*
Beaumont-Port Arthur	90	85	40	4
Huntington-Ashland	92	72		0*
Evansville	93	83	40	2
Erie	95	89	20	0*
Shreveport	96	101	40	4
Racine-Kenosha	97	87		0*
Little Rock	98	93	40	4*
Charlotte	99	99	40	4
Johnstown	100	79	20	0*
Madison	101	124	20	0*
Springfield, Illinois	103	115	40	3
Roanoke	104	102	40	3*
El Paso	105	96	40	4*
Austin	106	106	40	3*
Sioux City	107	119	40	3*
Stockton	108	123	40	1
Lincoln	109	116	40	2*
Hamilton-Middletown	110	100	40	0*
Altoona	111	98	20	1
Kalamazoo	112	127	20	3
Savannah	114	95	40	4
Cedar Rapids	115	130	20	4*
Terre Haute	116	121	20	0*
Columbia	117	114	40	3
Mobile	119	97	40	4*
Waterloo	120	137	40	4
Corpus Christi	121	134	40	4*
Decatur	122	138	20-40	2*
Topeka	123	125	40	2
Winston-Salem	124	104	40	2*
Springfield	125	126		0
Montgomery	126	111	40	2*
Charleston, S. C.	127	109	40	3*
Jackson, Mississippi	128	117	40	4*
St. Joseph	129	120	20-40	1*
Greensboro	130	131	40	2
Galveston	131	132	40	3
Asheville	132	128	40	3
Columbus, Georgia	133	113	40	2*
Springfield, Missouri	134	135	40	4*
Augusta	135	118	40	2*
Amarillo	136	140	40	4*
Macon	137	129	40	3
Waco	138	133	40	4
Durham	139	136	40	3
Pueblo	140	139	40	4*

*Possible location of an additional station in the band 102-108 mc

TOTAL STATIONS WITH 12 CHANNELS 398

TOTAL STATIONS IF 102-108 mc CHANNEL IS ADDED..... 464

Yucca Salamunich, sculptor, modeling Mary Anderson, movie star.

A number of character sketches were presented by Richard Kean, Shakespearean actor. Other programs included "Vignette of the Home Front" and "Calisthenics for War Workers."

Station was on the air approximately eight hours, with about two-thirds of the programs devoted to films. There were no sponsored programs.

WRGB (GE), Schenectady.

According to the GE station, if they gave an "Oscar" for its top program in audience acceptance, it would be shared by three "Hep-Cats," a group of puppets belonging to Joe Owens, whose program recently received an audience rating of 2.93 out of a possible 3—the highest yet reported by the station. Although the puppet shows, as a group, drew fifth place in the rating of live talent programs by WRGB's audience, their popularity is established and suggests a good source for post-war television program material. Outstanding program is the Blue's Sunday night half-hour audience participation series, "Ladies Be Seated." Program was recently renewed on the station by the Blue for another 13 weeks.

W6XYZ (Television Productions), Hollywood.

A monthly series of puppet shows with miniature sets, props and costumes, were recently started by the station. Fairy tale characters are featured in the series entitled "Puppet Drama."

Presenting only five shows, station has been featuring boxing and wrestling matches, comedy serials, news and war analysis, and "Tele-Toons." Maj. Dick Bong, war ace, was interviewed in a recent program. With all shows sustaining, station was on the air approximately 25 hours during the month.

Richard Lane and Alan Mowbray have been added to the station as program emcees. Klaus Landsberg, director of W6XYZ, will be married on April 2 to Evelyn Ashlin of Rio de Janeiro.



One Man's Reflections

A Regular Feature by DR. ALFRED N. GOLDSMITH

Television License Tenure

When an author writes a book or a composer produces a piece of music, the government grants him an exclusive copyright on his brain child for fifty-two years. Some authors, or their surviving families, have felt that this period was too short to provide an equitable reward to the creative worker. The inventor of a new machine or other device receives seventeen-year government-sponsored protection for his invention in the form of a patent. And there is a considerable body of seemingly justified opinion to the effect that this is too brief a period to enable the inventor to reap a reasonable return from that which he has evolved for the benefit of humanity.

On the other hand, passing to the governmental license to drive that lethal weapon, the automobile, there is found a one-year license tenure. Perhaps this is based more on a desire for revenue than on any feeling that the license of a car having a driver with a reasonably non-injurious record will fail to be renewed. Again, the local saloon or tavern faces an annual requirement for license renewal, again contingent on good behavior of the management (and fraught with fiscal advantage to the State). However, the tavern carries on activities of a type which are a source of major concern on moral grounds to at least a portion of our population. Television, it is to be hoped, will be free from that aspect.

All of this leads to the thought that few major industries of unquestioned public value and high standards of normal performance have as restricted a license tenure as radio broadcasting and, as a result, television.

Where then should television broadcasting, by radio, be classified insofar as the determination of an appropriate license period is involved? Since television broadcast-

ing is not a dangerous or potentially moral-injuring field, there is no basic reason from the public viewpoint for requiring frequent license renewals for television stations.

The perennially recurrent uncertainty of renewal of a license which automatically expires after a relatively brief period may lead to depriving the broadcaster of earned privileges and therefore be an injustice. Such license-renewal requirements have been regarded as implied program censorship. Others have felt that the censorship psychology ran parallel to that requiring frequent renewals of station licenses. Whatever the facts, it is healthy to avoid either nullification in effect, of such a requirement by converting it into a mere formality or, on the other hand, rigid enforcement of such a requirement with all the possible doubts, risks, and censorship-policy interpretations which such an enforcement might be interpreted to mean. And this is the case even if such an interpretation is an incorrect one. If, however, the period of a license were to be extended, the question arises: for what length of time should the license run?

Television is clearly a rapidly evolving art. Technical methods are in process of change and standards are still subject to final approval by the FCC in one frequency range; insofar as another frequency range (from 500-1000 megacycles) set aside for experimental development is concerned, no standards whatever exist. The industry will have to consider the results of prolonged experimentation in this second domain before such standards can be analyzed and generally approved. And, it may be added, there is the further possibility that frequencies in the 5,000-50,000-megacycle range may still later be used for highly evolved types of color television. All of this rather indicates the possibility that television will remain a field under active

development and that broadcast transmitting equipment in that field will not be indefinitely usable without modification. Assume, for example, that equipment may have to be considerably modified or even replaced in something between three and six, or even ten years. Clearly the period of a license should bear a reasonable relationship to the assumed average operating life of the station equipment. It would be a poor reward for enterprise on the part of the television broadcaster to subject him to doubt as to station-license renewal at just about the time that he will have to replace his station equipment. On this basis, at least a ten-year license would seem in order. Alternatively a license might run indefinitely, subject to "good behavior" and in the absence of judicially proven charges of improper performance.

Another economic aspect of television pioneering involves the anticipated period of operation of a new station before it becomes a profitable venture. There is a general and seemingly well-supported opinion that operation of a new station for the first year or two will result in losses; that the third year may see a breakeven; and that the fourth and fifth years will witness operation on a somewhat profitable basis. If this assumption is even approximately correct, the television pioneer is taking a long-term risk of some magnitude and must possess his soul (and his financial backers) with patience. If uncertainties of license tenure are superimposed on the inevitable commercial risks, a psychological hazard of some magnitude will be created.

Facing the courageous pioneer in the field of television broadcasting—a field of unquestioned problems and challenging difficulties—the government can hardly make a more encouraging gesture than to refuse to add one more negative factor to the broadcaster's prospects. It can, in other words, change the license tenure of television stations to a decade or more, or preferably run such licenses indefinitely in the absence of judicial proof of station or program conditions fully warranting the withdrawal of the license. The public interest can thus be maintained as against an unwise or unqualified broadcaster.

PROGRAMMING

The adaptation of radio shows for television is an interesting and economic move (Dec. 1944). Many radio shows have proved very successful, in fact, their entertainment value has gone way up with the adding of sight to sound. At the present stage and probably in the early post-war years, the agencies controlling radio shows which lend themselves to video programming will be in an advantageous position because of splitting costs in production, scripts, direction, talent, rehearsals, etc. But the agency which doesn't experiment with original material created for television will find that those who have will be far ahead; for it is obvious if television is to compete as an advertising and entertainment medium, it must utilize every possi-

ble advantage it has in order to compensate for high production costs.

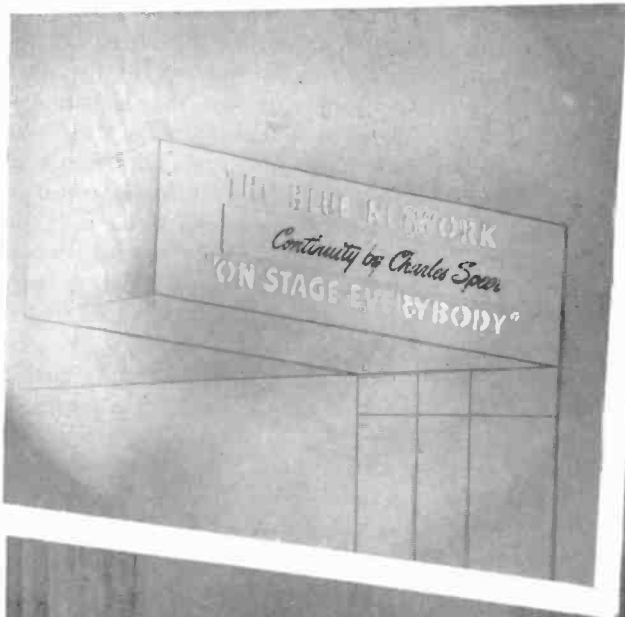
An interesting show created specially for television is "Thanks for Looking", written and emceed by John Reed King and now being produced by Ruthrauff & Ryan for Lever Bros. Basically it's a variation of the "Pot of Gold" formula. Viewers are urged to send in post-cards with their name and phone number. Each week these cards are placed in a glass bowl which are then drawn out during the show and the lucky card-holders, watching the program on their sets at home, are called on the phone. When they answer the phone, King asks a quiz-problem and if the viewer answers the problem correctly, they can choose from a number of prizes on display. The

entertainment offered is completely dependent on the horseplay of the emcee and the interest of the quiz. The program runs for 30 minutes. Whether "Thanks for Looking" can stand on its own when television really gets going is doubtful. However, it is an experimentation along the right lines and if only the skillful way of intertwining the commercial as part of the show is all that is learned—it is a lesson well learned.

Another significant turn during the past month was NBC's series of plays. We must take our hats off to producer Eddie Sobol who has turned in some very professional dramas with "Men in White" and "The Black Angel". Sobol directs his shows so well and has such excellent support from the NBC technical staff that it is difficult at times to tell whether the program is a live or film production. The technical staff has done exceptional work in making possible such completely smooth working productions right through from lighting to camera technique.



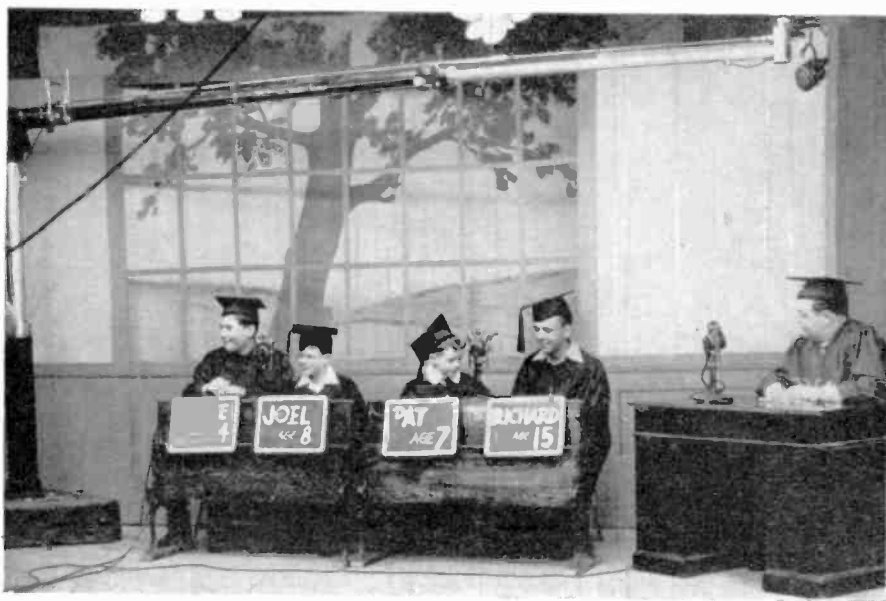
Final episode of WNBT's successful live-talent production of Cornell Woolrich's novel, "The Black Angel." Mary Patton, the heroine, is sitting with Richard Keith, Paul Conrad and Philip Foster



Scenes from the Blue's programs which were launched last month on WRGB (GE) and WABD (DuMont). The WRGB show, "Ladies Be Seated" with Johnny Olsen as emcee, adapted for television from the Blue's radio show, is a fast-moving, excellently produced and well directed audience participation program. Recently extended for an additional 13 weeks, program is directed by George Wiest, director of the radio version of the program and Larry Algeo of WRGB. Although the WABD series, "On Stage Everybody", was weak at the start, program has picked up considerably. Show is directed by Harvey Marlowe of the Blue.



Emcee Johnny Olsen ponders on what to use for additional drappings on contestant in the Blue's zany production, "Ladies Be Seated"



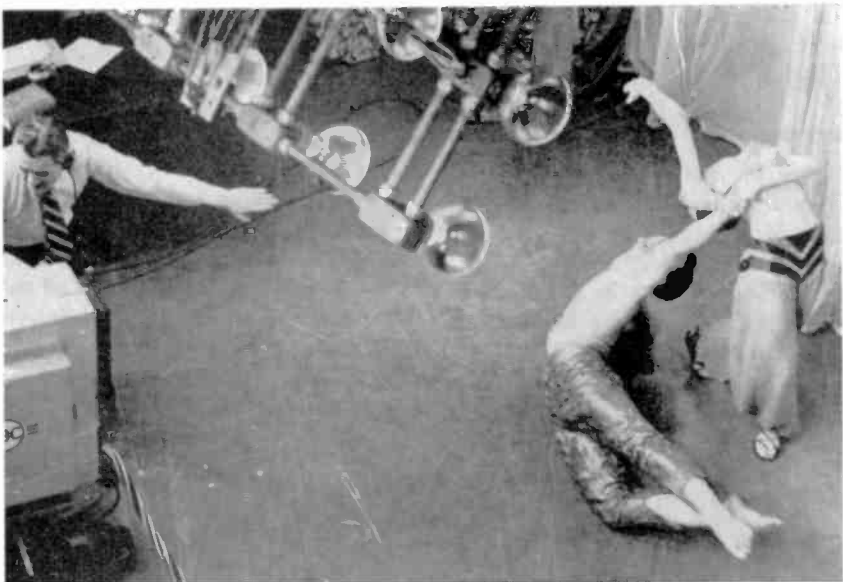
(above) Unexpected downpour of water from sides surprised these two contestants paddling in a make-shift rowboat in "Ladies Be Seated". (left) Telecasting of Quiz Kids in recent Blue show on WABD



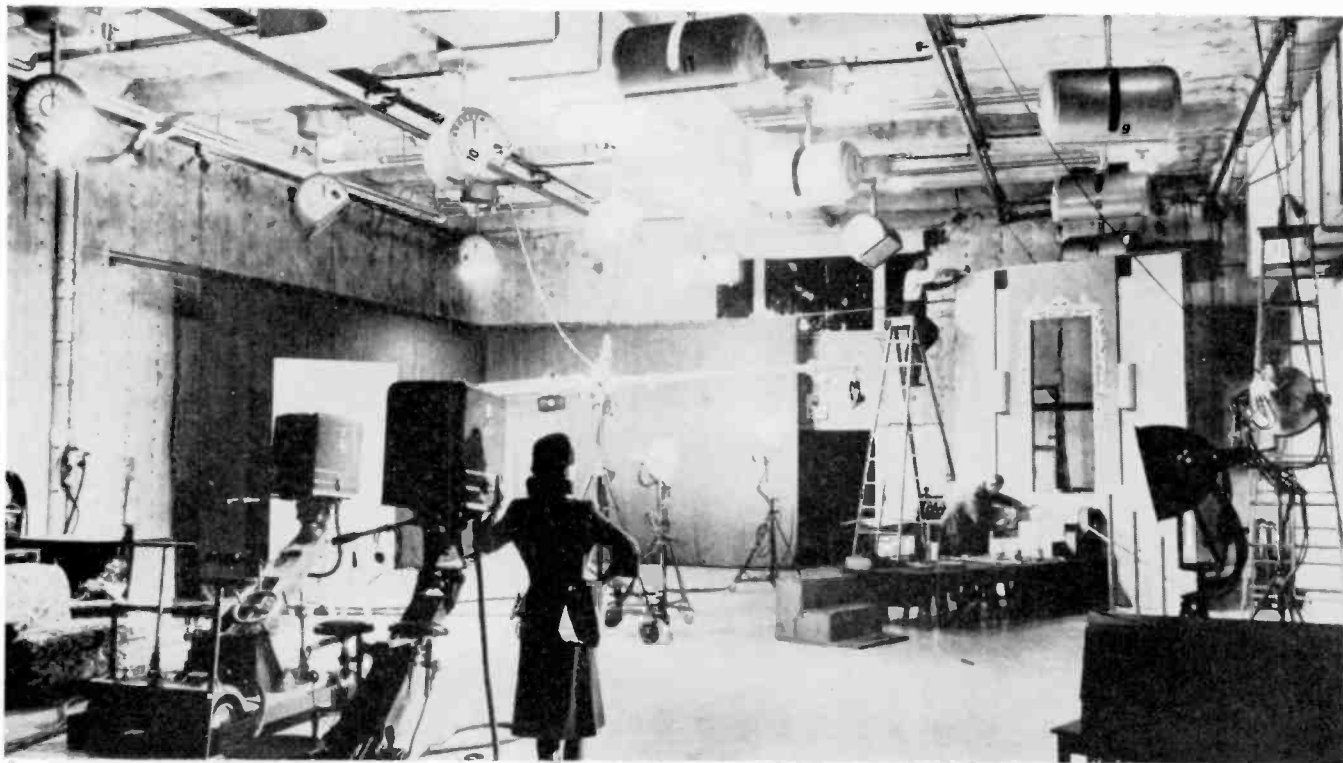
Scene of Dunninger program on WCBW with Dunninger (standing) and guest-judges (l. to r.) Lucy Monroe, singer; Russell Patterson, artist; Choo Choo Johnson, model and W. H. Fawcett, Fawcett Publications



(right) Bathing beauties were used to show development of bathing suits in recent program on WABD by WNEW New York



Scene from a ballet specially adopted for television on WNBT (NBC) by Leonide Massine. Show was relayed to WRGB (GE)



Main studio of GE in Schenectady, showing complete installation of ceiling and floor units

Mercury Lighting for Television Studios

by H. A. BREEDING

Mr. Breeding, a graduate of Iowa State College in 1926 went directly to General Electric and was assigned to the Illuminating Laboratory. In 1933 he was in charge of installation of several lighting features at the Century of Progress in Chicago. He worked on lighting at the Golden Gate International Exposition in San Francisco. Following is G.E.'s experience on mercury lighting as previously reported in the proceedings of the I. R. E.

General Electric's experiment with water-cooled mercury lamps or television studio lighting began at the New York World's Fair in 1939 and finally culminated in a complete installation in the studios of WRGB at Schenectady in the fall of 1941.

The "House of Magic" television installation made use of two banks of three A-H6 1000-watt water-cooled H type Mazda lamps. These were operated from a 3-phase source of power stepped up from 120 volts through high-reactance transformers connected in wye on both primary and secondary.

The three lamps in each luminaire were spaced along the focal axis of the reflectors and connected in series to the city water system and throttled to take about 4 quarts of water per minute. The water circuit was electrically interlocked with the power

supply to that without water the lamps could not be started.

The trough-type floodlights were mounted in a fixed position forward of and to right and left above a stage about 6 by 8 feet approximately 8 feet high.

Experimental Installations

In experimental station W2XB four floor-lamp units were devised from 18-inch Miller-etched Alzak-finished concentrating reflectors. Each of these floods likewise used three lamps, but the grouping was about a horizontal line through the focal point of the reflectors with the various lamps about 1½ inches apart on the sides of an equilateral triangle. These floods were supplemented by groups of eight 500-watt reflector flood lamps mounted on portable wooden frames.

A single water-cooled unit of this

same type was used in the General Engineering Laboratory at Schenectady for the lighting of experimental subjects in connection with general television developments. All of these devices were mounted on standard motion-picture-studio tripods with an extra telescopic rod for vertical adjustment so that a maximum height of approximately 9 feet could be obtained. In actual practice the height of the devices was seldom changed during any show because of the mechanical difficulty involved.

This type of lighting was recognized as a temporary expedient, but due to the limited headroom no overhead lighting could be provided in the experimental studio. The desirability of a lighting system which would provide a general exposure level at any point in the studio with a minimum of physical effort and equipment was soon apparent, and, coupled with the simplification of studio operation to be expected by removing equipment from the floor, provided the necessary impetus for developing the present ceiling-mounted design.

The first experimental models of the ceiling-mounted units were manufactured for the Columbia Broadcasting System in the fall of 1940.

CBS purchased three of these units, and a fourth was made as a sample for experimental work and testing. The general idea of the first ceiling devices was the same as the design used at present in WRGB, except for the minor changes and refinements that come with building of a second lot of any new device. The reflector was an etched Alzak-finished aluminum trough generally parabolic in shape. The front-door glass was Bexlex diffusing glass and the opening was approximately 21 to 33 inches. A motor for rotating the device in the horizontal plane was installed in a canopy mounted against the ceiling and a second motor was mounted inside the reflector housing to rotate the device vertically. Three lamps were spaced along the axis of the paraboloidal trough reflector. The lamps remain in a horizontal plane while the reflector is elevated or depressed. This is a necessary precaution with this type of lamp. The power supply and water feed are brought in through flexible hoses from the canopy at the top into the reflector housing and no slip rings are used. The "elevating" and "rotating" motors are operated from a remote push-button station. The first devices could be rotated through one complete turn horizontally and could be elevated through 90 degrees. In the WRGB

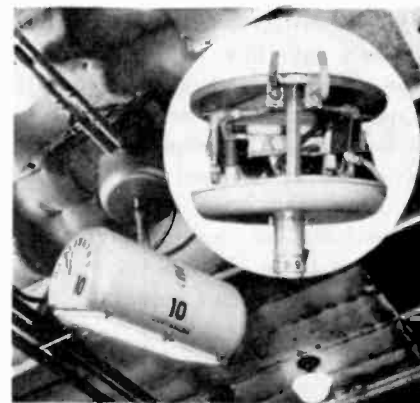
installation, the arrangement for horizontal rotation remained as before, but the vertical rotation angle was extended to 180 degrees.

A solenoid valve and a flow switch for interlocking the electrical and water circuits are also mounted in the canopy. The flow switch also acts as a check valve to prevent backflow of water from the discharge line in case of water-jacket rupture. Power cannot be supplied to the lamps unless water is flowing, and if a jacket rupture takes place, water is cut off on both the supply and discharge sides of the unit. A door switch in the same interlock circuit prevents servicing the lamps with power on.

The WRGB Installation

Late in December, 1940, it was decided to proceed with lighting WRGB's new station with ceiling-mounted units supplemented by the four tripod-mounted floor lamps which were to be moved from the old studio to the new. The new studio is 42 by 70 feet, with approximately 18 feet ceiling height between beams. The clear headspace for scenery and microphone booms is approximately 14 feet.

The piping and conduit run to each luminaire was made to a special ceiling plate fastened on a 30-



Close-up of portion of ceiling with light unit in WRGB and inset showing detail of assembly in canopy with solenoid valve and flow switch

inch square plank base bolted to the ceiling before the floodlights were mounted. It was originally estimated that the lamps should be spaced on centers to allow about 100 square feet per luminaire, but the final layout in WRGB studio is staggered on rows 9½ feet apart across the building and 6¼ feet apart along the building. The average space per unit, therefore, is approximately 120 square feet. In the studio there will finally be, according to present plans, 19 luminaires, of which 12 are at present installed and in operation.

Transformer-Room Installation

To conserve space, remove heat from the studio, and maintain the noise level at low values, it was decided to locate the transformer room in the basement of the studio. A 3½-inch incoming-power conduit was fed into the transformer room from the front of the building. Power from the service switch is distributed through a Flex-a-power distribution system with a 30-ampere disconnect switch to the primary of each control relay. These switches are mounted at about head height and can easily be reached by an operator from the floor. A 4-pole, 13.5-ampere relay operated from a control desk in the studio is mounted on the same pipe framework which supports individual single-phase high-power-factor transformers feeding each lamp. The transformers are connected delta on the primary and wye on the secondary. Primary taps at 208/220/230/240 volts are provided, and the 220-volt tap is used in this case. The transformers have a capacitor for



Lighting console which makes possible individual operation of the various circuits

high-power-factor maintenance built directly into them, and in order to keep the noise at a low level, the capacitor and core are imbedded in a silica-loaded compound and the whole device enclosed in a sheet-steel housing. The noise level of the installation is very low, noticeable noises being those of contactor operation and some contactor hum.

System Wiring

High-voltage conduit runs go directly from the transformer room in the basement to each individual luminaire on the ceiling. Three No. 10 solid, 3000-volt, 6/64-inch varnished-cambrie single conductors with single-braid insulation and one single-conductor No. 14 rubber-insulated, 600-volt, National Electric Code wire with white finish are run in each conduit. These conduits terminate in a high-voltage junction box in the canopy of the luminaire. A low-voltage junction box is also provided in each canopy for control wiring from the terminal board below the light bridge which is mounted on the rear wall of the studio.

A 24-connection terminal board for the control circuits to each floodlight is provided in the large junction box just below the light bridge. Each terminal board is fed from a separate fused circuit supplied through the lighting console on the light bridge. Mains protection for the control-circuit power is provided by the two air circuit breakers mounted on top of the lighting console.

The control-conduit installation is suspended from the ceiling beams. The high-voltage runs were made before the rock-wool insulating blanket was applied to the studio walls and so are hidden except near the connections to each floodlight. The wiring for each individual floodlight circuit is the same.

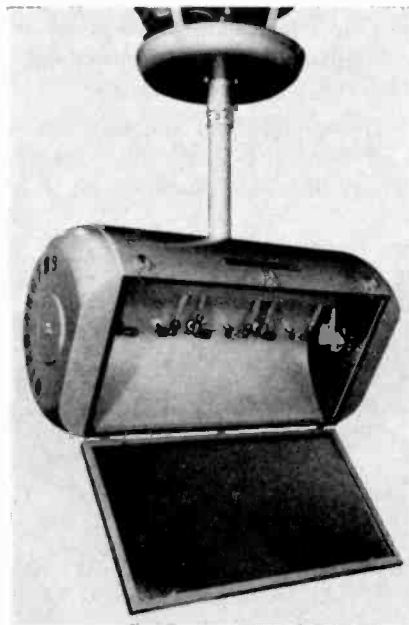
On the lighting console the circuits can be individually operated and an individual telephone-type key is provided for the turn-on and turn-off function, another for the elevation motor, and a third for the horizontal-rotation motor. Each control circuit is individually fused by a cartridge-type fuse near the bottom of the console. A pilot light is provided which indicates when the control relay in the transformer room is closed.

Water Circuits

Copper tubing is used throughout for permanence and quiet operation. All pipes are antisweat lagged which also reduces the noise level greatly. A glove valve is supplied for shutoff at each floodlight. A gate valve at waist height above the studio floor in the main riser is used for cutoff and for throttling to the proper head for the system.

The main riser is 1½-inch tubing which branches into two 1¼-inch headers. These headers branch into ¾-inch runs feeding 4 ceiling plates in parallel in each of 4 bays and 3 in the fifth bay. Of these only the first 12 are now used. One-half inch connections to the floodlights are through unions inside the canopy which encloses the ceiling plate and other equipment mentioned above.

The discharge lines are pitched downward from the unit connection to the 4-inch building vent pipe at ⅛-inch per foot continuous drop. Vent valves were originally supplied at the highest point in each discharge line to vent air bubbles from



View into casing, showing vertical elevating motor and gear assembly of GE light

the system. Difficulty with leaking vents has led to discontinuation of most of them now.

The system uses approximately 1½ gallons of water per unit per minute or about 16,000 gallons of water per week for 15 hours of operation.

Of the total wattage input to each luminaire, only slightly more than one third is actually radiated into the studio, either as ultraviolet, light, or heat. The energy per foot-candle from H-6 lamps is rated at 4 micro-watts per square centimeter compared to 7½ micro-watts per square centimeter for noon sunlight through ⅛-inch window glass, making this lamp much cooler per foot-candle than noon sunlight.

To determine the average operating time and average lamp life, over a recent three week period, time meters were placed on two floodlights in different parts of the installation. On the basis of studies of the resulting data, the average operating time for the lights was 15 hours per week. The average lamp life during the period was 72 hours, exclusive of floor-lamp units which were not included. The rated life is 75 hours of operation in periods of 25 minutes per start. Longer periods of operation per start tend to increase the lamp life.

Light-Output Performances

The etched Alzak-finished aluminum reflectors were later changed to polished chromeplated copper which was the wartime substitute for polished Alzak aluminum. The polished reflector was found desirable to aid in piling more light on the set from distant floodlights and, while the polished chromium has an 18 per cent lower reflection factor than polished Alzak aluminum, still the directional beam is considered more useful than the softer beam from the original reflector. The maximum candle power at the rated average lamp life is approximately 70,000.

The average foot-candles with all the floods pointed downward and oriented with the long axis of the reflector across the room was 315 foot-candles. It is possible to build up the intensity over a 10- x 15- X10-foot high scene to 650 or more foot-candles of general lighting, with the upper portions of the scene reaching 1000 foot-candles. By supplementing this lighting with floor lamps, good pictures are produced with little or no discomfort to the performers. This "no-discomfort" feature is the crowning achievement of this high-intensity lighting system.

COMMERCIALS

We have no doubt that the producer of a recent Arrid Deodorant program would have jumped right out of his seat if he had been at home watching the show in his living room with some of his friends when suddenly the announcer's voice boomed out **HAVE YOU EVER HEARD OF UNDER-ARM PERSPIRATION?** We cannot understand why the producers didn't go all the way and utilize television fully to illustrate the point. Commercials like that will not be accepted in the environs of the family living room. A "must" for everyone who has anything to do with programming is to witness a number of video shows in a living room at home with a typical family group. It's only in this relaxed, intimate atmosphere that one can capture the very essence of the



Family group around new RCA post-war receiver

uniqueness of television. Visualizing the family group won't do. You have to be a part of it to grasp the reactions of a television audience. And obviously this can't be learned from

watching a show over a monitor, in the studio or even in a simulated studio living room.

The handling of such products as Arrid offers a challenge to the producer which he may find much easier to meet after he has given himself the "home viewing" treatment.

We don't know what the story is behind the Gillette commercials used for the Madison Square Garden fights, but it certainly is a flagrant waste of opportunity. Static slides are the extent of present commercials. What a field day it could be for active experimentation whether it consisted of interesting tieups with the sport or straight commercials. One of the best we've seen along shaving lines is the commercial used some time ago by Ruthrauff & Ryan. Commercial opens with a man shaving. Face, reflected in a mirror, shows shaver not doing too well. Suddenly the face in the mirror starts talking—telling the shaver to get wise and use a good shaving soap—Lifebuoy for a smooth shave.



Abbott Kimball Co., New York, produces fashion show for Gimbel Bros. on WNBT (NBC) with original *Harper's Bazaar* cover-model posing before magazine. At right model brings one of the magazine pages to life.



Ruthrauff & Ryan, New York, features John Reed King, assisted by Patricia Murray in audience participation program for Lever Bros.' Rinso and Lifebuoy. (above) King has just drawn name of televiewer from glass bowl and is posing question to person called on phone. (left) With lucky televiewer watching scene, emcee King stands before prizes awarded to participant answering correctly.



Westheimer Co., New York, televises "Circus Folks" on WABD for Red Goose Shoes. Clown is describing the comfort and value of the shoe to girl and boy who are curious about clown's over-size shoes



Young & Rubicam, New York, for Cluett, Peabody & Co., New York (Sanforizing Division) uses twins in fashion program on WABD (DuMont) to obtain mirror effect.



Wade Advertising, Chicago, telecast nurse advising mother to use One-A-Day Vitamin Tablets (Miles Laboratories) in commercial used on Blue's "Quiz Kids" program on WABD.



Charles M. Storm Co., New York, tries out institutional advertising tying up client Park & Tilford with War Bond drive.

I. J. Fox Co., New York, discards traditional fashion programs with models parading up and down before cameras, using instead, close-ups of model to better catch the beauty of the furs. Fur coat modeled here is rare chinchilla retailing for over \$20,000.



TECHNICAL DIGEST

Patents

Improved Picture

Patent No. 2,368,096 has been awarded to Alva B. Bedford, Collingswood, N. J., covering a picture transmitter designed to improve transmission of the correct component of picture signals by utilizing the large power tubes of the transmitter more efficiently.

Assigned to Radio Corporation of America, the patent has, as one aim, the provision of a satisfactory DC amplifier for the low frequency components. Another object is to reduce the effects of low frequency disturbances. Horizontal synchronizing impulses are produced at the end of each scanning line and vertical synchronizing, or framing impulses, are produced at the end of each picture frame. The synchronizing impulses are mixed with the picture signals for transmission therewith.

Restoration of the lost DC and low frequency components is accomplished by supplying the carrier wave, after modulation by the picture signals and synchronizing impulses, to a biased rectifier circuit, adjusted so that when the modulated carrier wave exceeds a predetermined amplitude, it is rectified and fed back to a DC portion of the transmitter amplifier channel to reduce the amplitude of the carrier wave.

Television Receiver

Joseph K. Rose, Chicago, Ill., won No. 2,368,882 on a television receiver which includes a panel or frame surrounding the image exhibiting screen, and an extensible light shield that may be collapsed (like the bellows of a camera) into a recess of the panel bordering the screen. This shield may be extended to any one of various positions to exclude external light from the image exhibiting member, so that satisfactory vision of the television image may be obtained without darkening the room in which the receiver is located.

It is held that the bellows-like shield does not detract from the ap-

pearance of the cabinet. When not in use, the shield may be collapsed into a door which serves as a part of the shield when the device is in use. It may be adjusted to the proper line of sight for the most satisfactory viewing of the picture by observers. The device may be adapted to any television receiver utilizing the conventional cathode ray tube and fluorescent screen.

The patent was not assigned.

Tube To Reduce Harmonics

Also awarded was No. 2,368,884 to Otto H. Schade, West Caldwell, N. J., on a television tube designed to compensate for second order distortions which are introduced into the television signals produced by reason of the scanning of an electrostatic charge storage type of target or mosaic electrode. These distortions occur in an electronic image transmitting tube which is subjected both to the light of an image from which the electro-optical image is to be produced, and also to the action of a high velocity electron scanning beam used to discharge the mosaic element.

It often happens that it is possible and practical to generate and transmit television image signals which are almost completely free, of first order distortion, but which are not entirely free from second order distortions—the “dark spot” distortion which appears frequently on the viewing plane in the points of reception of an image as a dark shading distributed over random areas of the receiver observation screen; it usually is surrounded or bordered by lighter or flared areas.

The patented tube is designed for use in the familiar transmitter utilizing a cathode ray tube with an electronic scanning beam with traverses a target of the mosaic electrode type. In the course of this traversing, there sometimes develops a spurious or undesired signal which causes dark spots; this probably occurs as a result of various electrical field distributions occurring across the surface of the mosaic electrode

which cause the escape of photo-electrons and redistribution of secondary electrons released by the beam from the mosaic to be non-uniform.

To obtain a uniform and stable dark signal, the system utilizes a novel mosaic type target electrode incorporating a frame or guard-band of photo-electric material proportioned to have a predetermined capacity and illuminated to produce thereon a predetermined potential in accordance with the image subject matter and image brilliance.

The patent was assigned to RCA.

Reduction of Echo Signals

David B. Smith, of Philadelphia, won No. 2,369,614 on an apparatus designed to reduce or eliminate the effects of echo signals on the received or reconstituted picture, particularly the undesirable effects resulting from the arrival, during the picture line periods, of echoes of the horizontal or line synchronizing signals.

A problem often is encountered in the reception of long-delayed echoes, corresponding to signal path differences of a mile or several miles. Since the speed of propagation of a radio wave is approximately 1,000 feet per micro-second, path differences of three or four miles may produce echoes delayed by 15 or 20 micro seconds. These sometimes appear in considerable strength as reflected synchronizing signals.

In this patent, reference is made to disclosures of F. J. Bergley and W. E. Bradley (Serial Nos. 433,660 and 435,402) of a method to reduce echo signals by periodically changing the phase or polarity of the echo carrier with respect to the picture carrier, so that the echoes are opposite in successive frames and balance each other out. These phase changes are effected at the transmitting station and require no additional equipment at the point of reception.

As an improvement on this method, there is here patented a system to effect the changes in phase gradually. It is held that the Bergley-Bradley device effects the required changes suddenly through the agency, for example, of an electronic phase-reversing switch. This may produce short-time amplitude transients which may be difficult to eliminate.

In the Smith patent, the phase of

the carrier is advanced, retarded, or reversed gradually by changing the carrier frequency a predetermined amount for a predetermined time interval until the carrier has lost or gained the desired number of electrical degrees. Thus the carrier amplitude may remain constant and no amplitude transients are produced. The control device applies especially to 525-line alternate carrier television systems.

The patent was assigned to Philco Radio and Television Corporation.

Receiver Control From Transmitter

John H. Homrighous, Oak Park, Ill., won No. 2,369,783 on a system for controlling radio and television receiving sets by operation at the transmitting station, so that a power supply may be connected to the receiving set. While the apparatus has utility in conventional television systems, it is held to have additional value for military uses; it would permit a television station to transmit by progressive scanning at certain predetermined time intervals during the day, code messages or pictures, while at other times interlace scanning could be used. Certain code symbols would be provided so that certain sets of numbers appearing on the screen may explode bombs, while others may control robot vehicles, and still others may be used for telegraph or Boudat code symbols.

The apparatus features means whereby certain picture control characters are reproduced and supplied to suitable photo-tube circuits for generating the synchronizing frequencies at the receiving station, thereby eliminating the necessity of transmitting control frequencies. This would also narrow the frequency band required.

An electric motor is provided, connected to a drum having two black bands. As this drum rotates in front of a conventional transmitting tube, two short black lines will appear alternately, but separated on the mosaic which will be reproduced at the picture tube in the receiving set. These are used for controlling the sweep frequencies. Thus each mark or sign on the mosaic is definitely identified with a field and also is

definitely related to the speed of the motor, which is two fields per revolution.

Also connected to the motor shaft is a disc of light-polarizing material, revolving past stationary pieces of light-polarizing material. Separate sources of light are provided to cause a variation in the intensity of light reaching each photo-cell from zero value to maximum value and back to zero. The photo-cells control the grids of two amplifier tubes, and a continuous rising and falling current is produced in the primary winding of a transformer whereby alternating voltages are produced in the secondary winding.

Frequency may be changed at the option of the operator at the transmitting station, and the number of lines per field may be changed at predetermined intervals.

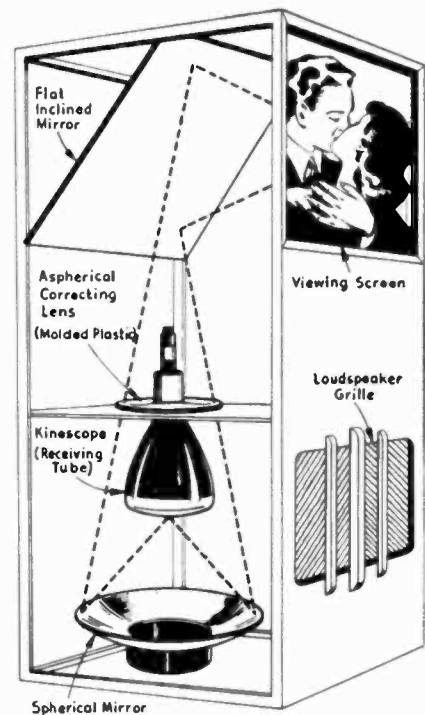
The patent was not assigned.

Large Screen Tele Receiver Demonstrated By RCA

An advanced development model television receiver reproducing pictures that are brighter, clearer and five times larger than were obtainable on pre-war sets was demonstrated recently in Radio City by the RCA Victor Division of the Radio Corporation of America, with the cooperation of the National Broadcasting Company.

The receiver features a new type of screen, 16 x 21½ inches, made of surface-treated plastic.

This large size image is made possible through an entirely new optical system developed by RCA engineers and scientists, which consists of a bowl-shaped mirror and molded plastic lens of special design which delivers to the back of the viewing screen about six times as much light as could be obtained with a conventional F:2 movie projection lens. In the model demonstrated, (Fig. 2.) the cathode ray receiving tube is mounted face downward in the lower part of the cabinet, with the bowl-shaped mirror below it and facing upward. Light from the face of the tube is reflected upward from the mirror through the plastic lens to a



flat, inclined mirror near the top of the cabinet, from which it is thrown upon the back of the viewing screen. The vertical mounting makes it possible to install the entire receiver and optical system in a cabinet not much larger than a standard radio console.

According to Frank M. Folsom, Vice President in Charge of the RCA Victor Division, television sets of the type demonstrated will not go into production until wartime restrictions on manpower and materials are removed. He said that the company expects to make large-screen receivers available within about one year after civilian production is resumed.

Console models, containing projection-type television, FM and standard broadcast receiving facilities, Mr. Folsom added, will cost approximately \$395. RCA Victor will also have several models equipped with direct viewing picture tubes, and at least one table model priced at about \$150.

Du Mont has also come through with a demonstration of a large-screen laboratory model. However, the Du Mont model employs a direct viewing system based on a new 20 inch tube, which gives an image of approximately 13½ x 18 inches. It is generally conceded by now that the larger screen is what the public will demand, and all manufacturers are now readying plans for receivers with larger screens than the pre-war sets.

EDITORIAL

WE BLAME THE MUSICIAN!

There has been too much talk about Petrillo! What he is and what he has been getting away with we all know. The important factor is that he has had the backing of the musicians in all of his notorious "decrees." It's the musician who has tried to 'make work' too many times. It's the musician who has been responsible for the undemocratic tax on records. It's the musician who has banned the Interlochen music camp school from broadcasting, and now it's this same musician who, not content with slapping mature businesses around, has now graduated to the beating babies class. That's exactly what he did when he supported the ban on musicians participating on any television programming.

Instead of taking the intelligent approach that the various performers unions took a few years ago when AFRA, Equity, and the Screen Actors Guild appointed a joint television committee to study and report on the new industry, they backed their leader in this latest caper that may prove more to their harm than any other move they have ever made, when the final returns are tabulated.

The sound policy adopted by AFRA and the other aforementioned organizations, based on the principle that this infant industry may well prove to be one of the greatest entertainment mediums that has ever been devised, and therefore it would be an excellent idea for their members to get some experience now, will pay dividends in the long run, both in good-will and developed skills.

But the musician couldn't understand this fair, co-operative way of getting things done. Instead, when he first came to grips with television, he slapped an \$18 minimum for one hour or less. In view of the present status of television, which is all give and no take, this is nothing less than a hold-up. However, not being satisfied with that, they decided to pick up their instruments and leave the industry flat in its most important phase, that of final experimentation.

One factor which the musician seems to have overlooked, however, is that producers and directors, now faced with the necessity of finding some alternative to live musical talent, may discover that recorded music not only solves their problem, but is far less expensive. If this proves to be the case, these same musicians will soon be howling that the industry is unfair, because it insists on adhering to records even after the musicians have condescended to play for television.

The broadcasters, advertisers and other employers of music for television must realize by now that their grievances have not been with Petrillo, but with the men who elect and support him. It's high time that the musician himself realized that he can't hide behind Petrillo forever, but must sooner or later stand indicted as the source of trouble. Just as the returned military man will have the right to bear grievances against the worker who has struck during war times, so will the public bear grievances against the man, who, while

masquerading behind some sweet sounding instrument, blocked and retarded one of the country's most important hopes for post-war industry and employment. Let every member of the union take this into consideration each time he supports and re-elects Petrillo. Sooner or later the term 'scab' and the term 'musician' will be synonymous if these conditions are not rectified. The only road left open to complete vindication is the throwing out of Petrillo and the adopting of sound democratic business policies.

ADVERTISING ACTIVITY

In the post-war rush to get into television the limited number of stations operating will not be able to accommodate all of the time requests they will receive. Experimentation then will be much more costly than it is at the present time. NOW is the time for the advertiser to get his feet wet in this new field. Present costs are relatively low, and time and talent are available.

Many advertisers and their agencies who are now snugly sitting back, waiting for the day when television grows up and there are profits to be reaped, are going to discover the painful fact that they have lost out when the industry takes its rightful place as one of the more powerful advertising mediums.

They will find that the best hours and programs, technicians and talent, will be snared by such tele veterans as Ruthrauff & Ryan, BBD&O, and a handful of other agencies. In the sponsor field, firms like Atlantic Refining who have been telecasting the football games at Franklin Field in cooperation with Philco for more than five years will certainly have the first crack at these events when television is really under way. The same goes for Gillette and the Madison Square Garden bouts that they have sponsored for some time. Bulova will surely have a corner on NBC time signals and so on down the line. Think of the head start Lever Brothers will have with more than two years of active program experimentation behind them now.

Yes, even at this early stage many agencies and advertisers will find they have already missed the television boat.



(Cover) "Licking the Musician Crisis", by W6XYZ. Hollywood, who take off on the current Petrillo ban with a puppet orchestra.

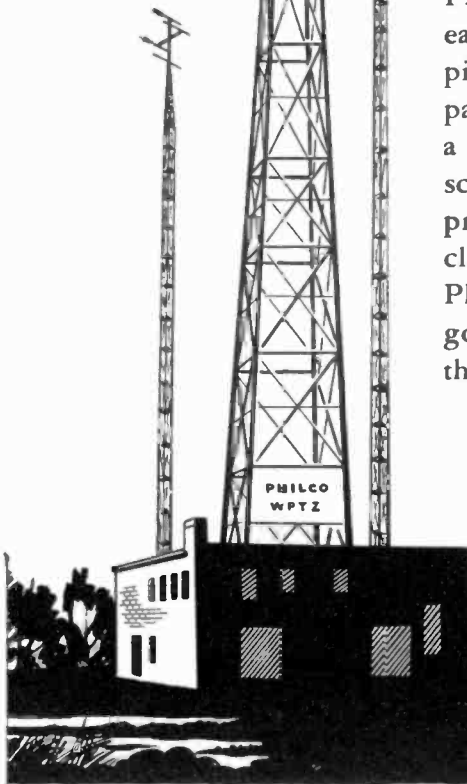


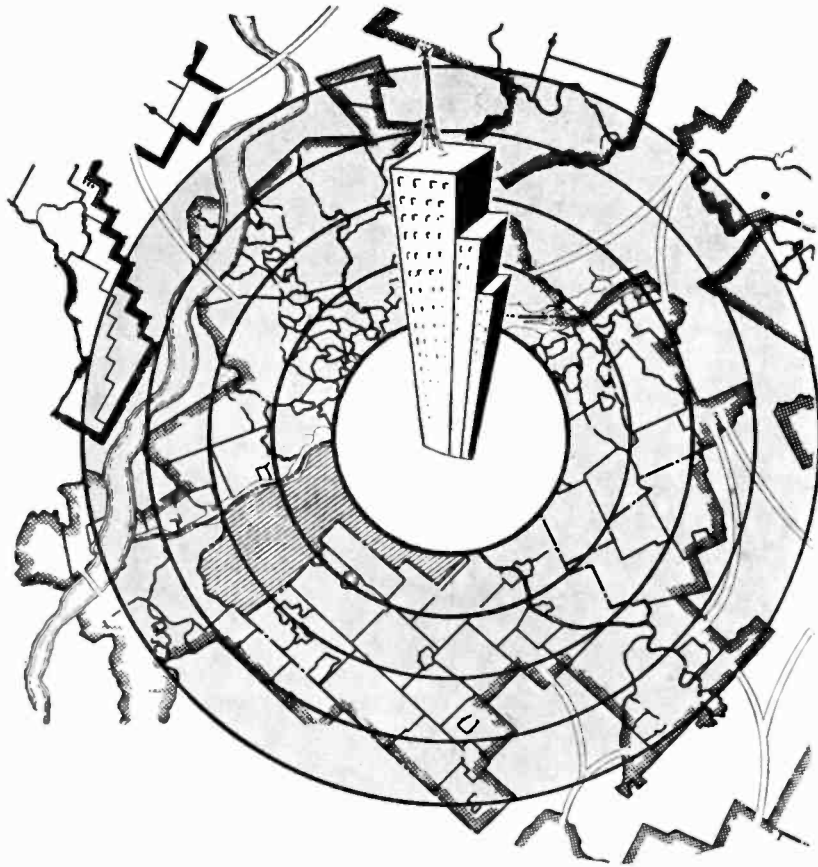
A Television Picture **IS NO
BETTER THAN THE SIGNAL**

PHILCO TELEVISION station WPTZ in Philadelphia puts on the air each week a television signal that is the result of many years of pioneering research by Philco engineers. In technique and in painstaking attention to detail, it delivers to the television receiver a picture that truly reflects the highest developments of television science. When television arrives, the principles developed in this proving ground of television transmission will contribute to the clarity and definition which people will enjoy in their homes. For Philco research has been based on the principle that no matter how good the receiver may be, the television picture can never be better than the signal which the station puts on the air.

PHILCO

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Furthermore, a pattern for profitable station design, management and programming has been set at DuMont's pioneer station, WABD New York... a pattern and backlog of Television "know-how" which is available to prospective station owners. Call, write or telegraph today.

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