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# Television

THE MAGAZINE OF VIDEO FACT



Television Station Design  
Los Angeles Television Outlook  
Video Lighting Problems

35 CENTS  
MAY 1945

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## ELECTRONIC TELEVISION IS AN RCA DEVELOPMENT

This is the first of a series of advertisements which will show that RCA engineers developed the basic essentials of the electronic television system — including tubes and circuits.

RCA built the first all-electronic television transmitters and receivers—the first commercial television station — established the first television relay system — presented the first electronic theatre television — was the first to televise a baseball game, and a Broadway play; and was first to televise from an airplane.

RCA is, and will continue to be, the leader in practical, successful commercial television. You may expect the best of all kinds of television transmitting and receiving equipment from RCA.

# I. THE ICONOSCOPE

**P**RACTICAL TELEVISION began when television became all-electronic. ALL-electronic television began with the RCA Iconoscope.

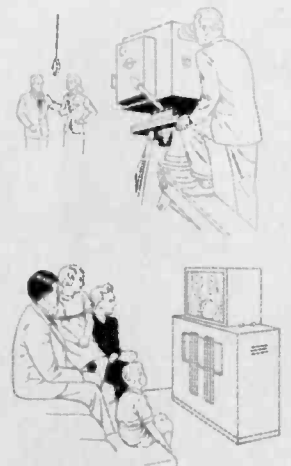
The desirable possibility of displacing mechanical scanners by an all-electronic system was recognized very early. However, a practical electronic television pick-up device required a sensitivity that no ordinary tube possessed.

The Iconoscope, developed by Dr.

V. K. Zworykin, Associate Director of RCA Laboratories, was the first electron tube to answer this need. By utilizing the now famous "storage principle," in which energy is stored up between successive scanings, the Iconoscope made electronic television a reality.

Under the direction of Dr. Zworykin, RCA engineers have brought the Iconoscope to its present high degree of perfection.

*The Fountainhead of Modern Tube Development Is RCA*



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RCA VICTOR DIVISION • CAMDEN, NEW JERSEY

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## TELEMOVIES or LIVE SHOWS

NEAR RADIO CITY AND TIMES SQUARE



# Television

The Business Magazine of the Industry

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**COVER:** Sharpening Up for the Foursome. By Sewell Booth of Springer Pictures.

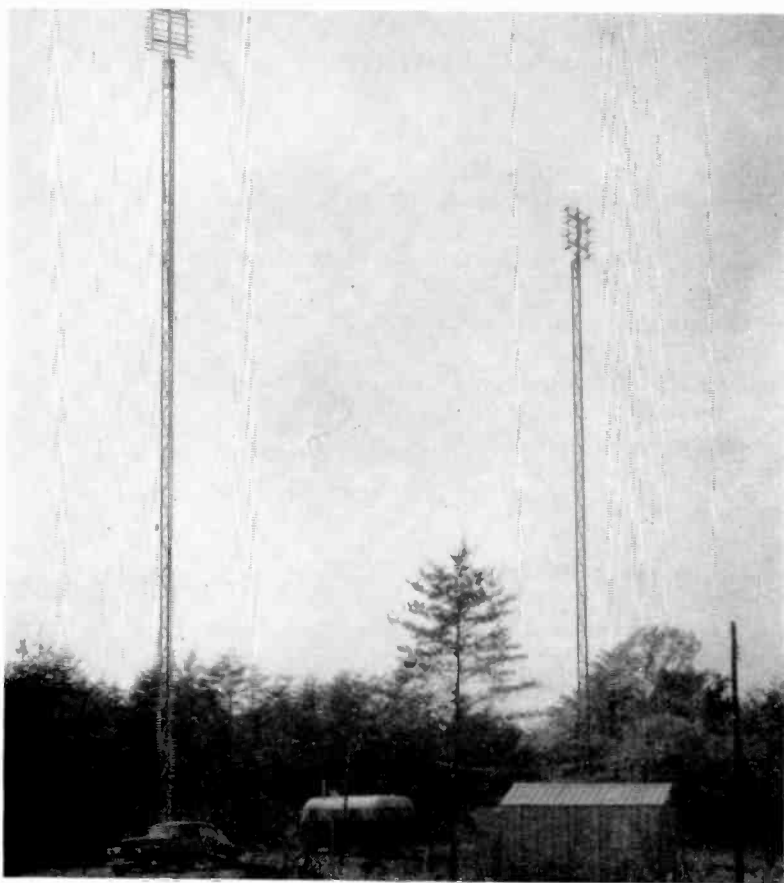
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# Television

## WASHINGTON TO PHILADELPHIA

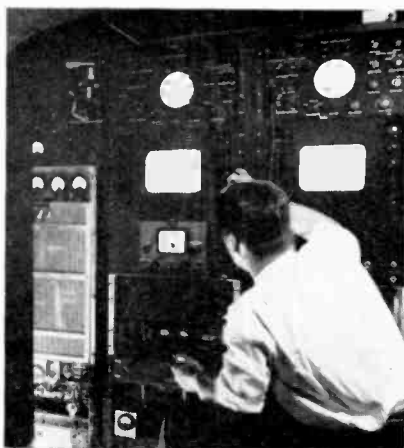
*Details on the Philco Television Network*



*Booster station set-up showing two antennae, trailer containing transmitter, monitoring equipment and shack for auxiliary power generator.*



*Inside of trailer. At left operator checking on telephone how transmitter signal is being received at next station. At right receiving and outgoing picture monitors.*



Every day seems to see some old dream about television become a reality. Latest dream to come true was a demonstration of a multiple radio relay network for television by the Philco Corporation on April 17.

The studio was located in the Statler Hotel, Washington, D. C. From here the program was transmitted to Arlington, Virginia, the first booster station. The television pictures were then linked to Philadelphia through relay stations at Odenton, Md.; Havre de Grace, Md.; and Honeybrook, Pa. to Philco's WPTZ in Philadelphia which in turn sent the picture out to the Philadelphia tele audience.

The first question asked by everybody in the industry was, "How was the picture received in Philadelphia?" The answer is that with only an approximate 20% loss of picture quality, the Philco engineers were definitely satisfied with the results at this stage in their relay work.

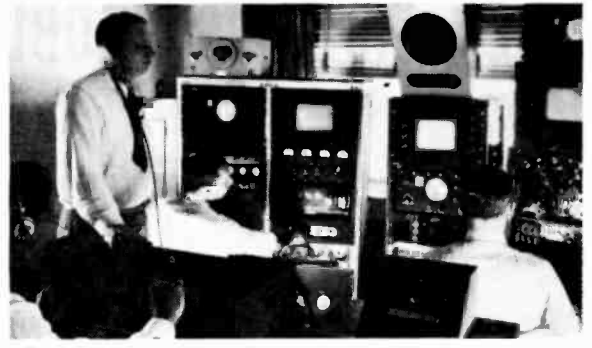
Naturally, the first step in planning the network was to pick suitable sites for the booster stations. The engineers relied pretty much on available geological survey maps. This gave them the information they needed on contours and suitable ground clearances. The maps were checked electronically and were found to be quite reliable.

There were, of course, two antenna towers at each relay station, one for reception and one for transmission, each 100 feet high. For relay purposes it is essential to have a highly directional beam. Therefore, a 24 element antenna was used consisting of 12 driven elements and 12 parasitic elements (reflectors).

The power of each station was between 35 and 40 watts. The frequency was alternated at each station at either 236 megacycles or 210 megacycles on a channel 12 mc wide. The carrier signal was amplitude modulated. A double side-band system with a 4mc modulation was used. Undoubtedly after the war, as laboratory



John Ballantyne, president of Philco has Mary Gay, News-week reporter, check with Larry Gubb, Philco board chairman in Philadelphia, on how his picture is being received.



Studio crew in Statler Hotel. Walter Merkle, WPTZ station manager (standing) keeps contact right through to Philadelphia

work by Philco and other manufacturers shows, it will be possible and may be preferable to modulate the carrier by frequency modulation.

A trailer is used to house the transmitting and receiving equipment at each booster station. Shacks were also constructed to house auxiliary gasoline driven generators in case of power cut-offs. Each station has two monitors, one to check on the incoming signal and the other on the outgoing picture.

The entire link was connected by private telephone line enabling all points on the relay to be in constant communication with each other. While each booster station was manned by two operators, Philco sees no reason why the booster station cannot eventually be operated automatically.

A very interesting point is that it is possible to feed an intermediate television station from the present link. In other words, a television station in Baltimore could easily hook

on to the Philco chain, probably at Havre de Grace for network programs.

It is still too early in the game to attempt to prophesy whether co-axial cable or radio relay is better for television network operation. What the Philco demonstration did was to prove conclusively that it is entirely possible and practical to connect distant cities for television by a series of micro-wave television relay transmitters.

## SMALL STATION OPERATION: The Local Advertiser

*First in a series on small station operation. Other articles will cover equipment, operation costs, programming, etc.*

The local station and the local advertiser will have a field day in television. This will largely come about through the use of films in programming. While this operation will be similar to the present use of transcriptions, the difference in the quality will undoubtedly build up the strength and importance of the local telecaster not only because he will be of more service to the community but because he will be so much more effective as an advertising medium.

Plans under way will insure the superiority of television films over the transcribed programs now available to the regional advertiser. Almost all the major film companies, as well as many new ones who will specialize in video films, have active plans for television programming. The entertainment value of these film programs will be so high that local stations will be able to sell and command a price for non-network time which would have been im-

possible in the past. It is estimated that a station will be able to offer an advertiser a half hour film of top quality featuring outstanding talent for about \$300.00. Undoubtedly, a complete new industry will develop in the business of transcribed television film programs. To be sure, live shows will have their place in local programming. There are many possibilities—local personalities and community events can be tied in effectively with the use of mobile and studio equipment. Many will scoff at the importance placed on films in television. Broadcasters will be quick to point out that the public during twenty years of radio has learned to prefer live shows to transcribed radio programs. The facts are though that the average weekly movie attendance in the United States is some 90 million. Obviously then, the public would not have to be educated to appreciate films in television. The transcription story in broadcast-

ing might be entirely different if top programs were transcribed.

While the dependence of the local station on the networks for programming will not be as strong as it has been in the past, the majority of video stations will still have to be affiliated with the networks if they want their share of national advertising. Films will not necessarily mean competition with network programs as much as it will mean strong local programs on non-network hours. The advantages of strong local programming will be of great value to local merchants and regional advertisers. Local stations consequently will find themselves booked more solidly than in the past and at much better rates. Local stations will be stronger financially and therefore should be of much greater value to the community they serve. The advent of television will be an asset to the local station, the advertiser, the programming producers and the national networks.

# VIDEO LIGHTING PROBLEMS

by WORTHINGTON MINER

*Findings of CBS experiences in television lighting over a period of years is elaborated by Mr. Miner, manager of the CBS video station, WCBW.*

The problem of lighting has been, and still is a major headache to every sensitive person operating in the television medium. There is no such thing as good, much less subtle, lighting in television. Some lighting is better than others; within individual programs, some shots have been better lighted than others; but even the best of television lighting is below the acceptable standard for almost any other type of pictorial medium.

Four things are to blame for this condition:

1. The inefficiency of the pick-up tube, itself.
2. The lack of adequate lighting equipment available in the open market.
3. The lack of knowledge of basic lighting principles on the part of most persons attempting to light television programs.
4. The generally low standard of visual sensitivity on the part of television directors.

There are at least six basic problems connected with the production of good lighting conditions in a television studio. Once these problems are recognized, various types of equipment may be assessed in terms of their capacity to meet these problems. Finally, however, and inevitably, the achievement of good lighting in television will depend upon the quality of direction, both technical and artistic, which fashions the sequence of moving images making up a television program.

The following are the six major problems causing grief and heartache to the person attempting to improve lighting conditions in a television studio:

1. Whatever the type of light source, it must be able to concentrate in all parts of the acting area a metre reading of not less than 500 foot-candles (incident reading).
2. The color responses of the

iconoscope (the normal interior pick-up tube) are vastly dissimilar to the color responses of the human eye, and are, in turn, considerably different from the color emanations of various types of lighting unit. As an example, the average iconoscope darts up to an enormous peak of sensitivity in the ultra-violet area, preceding the earliest frequency visible to the human eye. There is a sharp dip through the blue end of the spectrum, normally reaching its lowest point in the green area, and rising finally to a medium sensitivity in the area of the red and infra-red, the latter being again outside the range of visibility to the human eye. This factor of iconoscope sensitivity, not only violates normal expectancies in the use of scenery, drapes, costumes, etc., but often finds itself at war with the individual spectrum characteristics of incandescent, fluorescent, mercury vapor lamps, etc.

- a. The above applies in large measure to those difficulties involved in the production of monochrome television (black and white).
- b. The problem becomes even more important in photographing color. In color, the element of high-light and the value of contrasting tones within the gray scale is far less important than the element of color distortion, distortion particularly of values observable to the human eye, in walls, drapes, costumes, etc. With color, much more flat light is tolerable than in black and white; on the other hand, a far greater sensitivity is imposed in terms of Kelvin reading of the various lighting units employed.

3. In order to achieve an adequate quantity of foot-candles in all sections of the acting area, the number of lamps used is in danger of creating an intolerable quantity of heat. It is safe to say that at any time the heat within the acting area exceeds

90 degrees it will act as a severe handicap in the production of television programs. On the other hand, lighting units which give off a low degree of heat have many other disadvantages which make them less efficient in operation than many of the ordinary incandescent units, commonly associated with theatre and motion picture work.

4. A lesser consideration than heat, —though by no means negligible— is the factor of glare. Many units which might produce a very high foot-candle reading within the acting area, and might also represent a cold light source, will still produce such intolerable conditions of glare, that the average person appearing in front of the pick-up tubes is constantly forced to squint or turn away.

5. In order to find sufficient space for the number of light units demanded to light any given area, it is necessary frequently to step up the kilowatt rating of the individual units above a desirable maximum. This not only creates an excessive amount of heat and of glare, but also increases the danger of heavy shadows,—even worse, of multiple shadows. It would be preferable in many cases to use five 1000-watt units than one 5000-unit; but five 1000-watt units take up more space than a single 5000-watt unit, and consequently an insufficient amount of light is generated to take care of the given area.

6. Finally, and perhaps most importantly, television suffers from a handicap which is inherent in the very characteristic of the medium. Any television program is a continuous form of action, so that all areas must be lit at one time for every type of shot to be taken. — long-shots to close-ups with a radical change of angle of 180 degrees or more. Thus, the quantity of light, which must be available within any given area must also be sufficient to light from front, from right, from left, and from semi-







reverse shooting in everything from a long-shot to a head close-up. Even with the most perfect equipment available, this will continue to pose a serious problem to those attempting to improve lighting conditions in television. All too often, a comparatively acceptable light scheme for long-shots will prove utterly inadequate for close-ups in the same area. Furthermore, light which may be better than adequate from the front may prove to be grossly inadequate from right or left.

The following forms of light unit have been used at various times in television:

#### *Incandescent Light.*

a. The most primitive form of television light unit is the Birdseye lamp, a 500- or 1000-watt unit with a reflector contained in the lamp itself. Banks of these units, some of them remotely controlled, are directed toward general areas. These units are excessively hot, inefficient, and incapable of focussing. Other types of incandescent units of approximately 500- to 1000-watts each, employing special lamps with higher Kelvin reading and external reflectors, have proved more efficient in their color response, but suffer from the same faults of heat gen-

eration and inability to focus.

- b. The ordinary type of stage or motion picture incandescent spotlight is difficult to handle, because it creates deep shadows and hard edges to the beam. Some of these units, moreover, are excessively heavy and difficult to handle. They create heat and glare, and involve a very heavy cost in lamp replacement, particularly when multiple studio operations are contemplated.
- c. Various types of motion picture floodlight have distinct advantages for television. They have the disadvantage, however, of generating enormous heat, and of being incapable of focussing, while the same heavy expense involved in lamp replacement obtains.

#### *Fluorescent Light.*

The fluorescents have three great advantages:

- a. They are genuinely cold light.
- b. They generate a 6400-degree Kelvin light (daylight), which means an even color response over the entire area of the spectrum.
- c. They represent a very low cost in lamp replacement.

The difficulty with the fluorescents, however, is the fact that they are bulky, and generate a very small number of foot-candles for the size of the

individual unit. As a result, the entire acting area must be blanketed with these units in order to achieve sufficient over-all light conditions; and even this can only be gained when the lights are hung extremely close to the head-height of the actors.

In addition, the light from these units cannot be focussed, and, as a result, they blanket the area with light, creating a flat light condition, tolerable in color, possibly, but utterly intolerable as an exclusive light source for monochrome television.

#### *Mercury Vapor Light.*

Mercury vapor lamps, developed at General Electric, have certain distinct advantages for television. They have a very satisfactory color response, and, being water cooled the heat factor is extremely low. The replacement of the capillaries per unit is also comparatively cheap beside the replacement of incandescent lamps.

The mercury vapor unit is, however, a bulky, unwieldy unit, its complexity being augmented by the necessity of having to water-cool each individual unit, whether it be hung from the ceiling or handled from the floor. There is a further disadvantage in the fact that frequently these units break a water jacket, which may flood the stage during the time of



*Illustrated at top of picture are box-like holders with fluorescent lights. The large floor units on sides are the arc lamps. These two forms of lighting are most used at CBS, although birdeyes are used occasionally.*

performance. Most important, however, is the fact that the units have a tendency to disturb the electronic image, particularly when any part of them comes within range of the camera lens. This is particularly noticeable when cameras are moved with maximum freedom in the studio, an essential factor in the more flexible types of television production.

### *The Arc Lamp*

The great disadvantage in the arc lamp up to the present time lies in the fact that an operator was needed to attend each separate unit, that they were noisy when struck, and had a very low period of continuous burning before the carbons had to be redressed.

But the arc light, which may be used either as a flood or a spot, has a very good color response, an excessively low replacement value in carbons, and generates a very low quantity of heat. The newer automatic forms of carbon-arc, which may be struck remotely and silently, and will feed the carbon through during something approaching two hours of continuous operation, make it quite possible that this form of unit will become one of the major sources of television base light. (Under these conditions high-light can be achieved by a certain number of incandescent units.)

To summarize, it seems apparent that no one of the various forms of light unit now in the market will answer all the problems posed by the average television production. Columbia has been for some time, and is still experimenting with various combinations of all these units, to determine in what proportion they produce the most efficient light scheme.

Obviously, the major difficulty stems from the inefficiency of the pick-up tube itself, which demands so high a degree of foot-candles for normal operations. (In many cases the low contrast range of the pick-up tube is as grave a handicap to the production of a good picture as its sensitivity.) If, however, the various units be properly selected, an increase in the sensitivity of the tube itself should merely entail a reduction in the kilowatt ratings of the

various units, without basically altering the main concept of efficient light distribution.

### *Weaknesses*

The crying need for producing between 500 and 1250 foot-candles as a general over-all standard in the acting area has so far taxed the ingenuity of those attempting to light a television shot, that every type of refinement has been neglected. Apparently the basic standard has been to see the object or person involved, without particular reference to the artistic composition of each individual frame. As a result, few, if any, basic principles have been developed, establishing a standard to which good television lighting should adhere. In lighting for television, the gravest weakness stems from the fact that the over-all acting area has been treated as a unit into which a fixed quantity of light should be poured to meet engineering specifications. This is basically unsound.

If television lighting is ever to achieve a style of distinction, it must start by recognizing that every acting area is not a unit, but is subdivided into nine basic areas. From front, from right, and from left, that acting area must be divided into a foreground, a middle-ground, and a background. The arrangement of light must be so organized that a ratio of differentiation shall be obtained from any desired angle within that area. For example, assume that an actor is placed center-stage within a 10-foot or 12-foot square area. Viewed from the front, there should be a ratio of differentiation of not less than 40%, between the light on the background, the light on the middle-ground, and the light in the foreground. Thus, a background might read 200 foot-candles, the middle-ground 500, the foreground 750. If the perspective is shifted either to right or to left, however, the same differentiation should be obtained. One side, or the other, should represent the center of basic light source, meaning, for example, that if the light at extreme right read 750, the middle-ground light should read 500, and the light at the extreme left approximately 200 to 250. Reversing the angle of perspective to the extreme

left then, the character would be in semi-silhouette.

In order to achieve such results in any acting area, base light units must be so placed that a variation between 200 and 600 foot-candles can be achieved in any section of the acting area, either by remote control of the units themselves, or by an extra amount of units which may be added or subtracted from the norm of, say, 400 foot-candles. In order to achieve a proper hanging pattern for whatever units are used, it is obligatory to know what makes a good picture in terms of high-light and shadow within the limits of the receptivity of the pick-up tube. So long as nothing but an engineering formula for adequate light obtains as a standard, there will be no good lighting in television.

Perhaps the most difficult problem involved in lighting for television to date has been the tendency of directors to create almost intolerable conditions for using light by inept placement of actors. Month after month, one studio produced television programs in which practically no actor ever moved more than four feet away from a flat wall. Two persons speaking together remained at the same distance against the same flat wall. So long as composition of this sort obtains, not even Lee Garmes or James Wong Howe can create a satisfactory picture. A greater burden rests upon the directors to use the three dimensions of the television medium so that the values of various degrees of light readings will create a pattern of light and shade within the frame line of the image.

Television lighting is, and will continue to remain, a complex problem. Its primary difficulty lies in the sensitivity of the pick-up tube itself. There is further difficulty in the fact that no fully adequate equipment has yet been developed for television purposes. There has been insufficient analysis of the technical needs in terms of hanging arrangements, remote control, etc., of what units are selected. Finally, and perhaps of gravest importance, is the meager knowledge of directors regarding either the subtleties of light, or the methods to make good light a positive asset in a succession of moving pictorial images.





# TELEVISION STATION DESIGN

*Second in a series on studio design. Presented are stimulating plans of contest winners in annual architectural problem held by the Beaux-Arts Institute of Design. The problem was drawn up by Professors Cole and Meeks of Yale University.*

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In outlining the problem to the contesting architects, the complete procedure of a studio program was outlined as follows:

**Action:** Cameras and microphones are trained on the action of the program from various advantageous positions. The sight (video) signal and sound (audio) signal are monitored in a control room, and then sent by relay or co-axial cable to a transmitter in a different location. (The transmitter building is not part of this problem.) Although the studio arrangement for each program differs from that for any other program, a certain basic practice is followed. The action takes place in and before appropriate scenic investiture, as many sets of scenery being used as the parts of the program may require. Shifts from scene to scene are accomplished simply by the movement of cameras and actors from one set to another. A set of scenery may vary in width from 10 to 30 feet and in depth from 5 to 15 feet, depending on its nature and the number of performers in a scene. Sets are generally smaller and shallower than comparable sets on the dramatic stage. Cameras as focused on the action and the scenery from the open side of the set, and the several sets are arranged around the camera space. Cameras are moved freely; withdrawn for long shots, moved in for close-ups, and shifted from set to set. A microphone is suspended from the end of a telescoping boom which is completely mobile within a radius of approximately twenty-five feet of its pedestal, which is on casters.

Scenery is shifted silently while action is taking place in other sets. Some scenery is hung from overhead rigging, and much is handled on the floor only.

Light for the program is furnished by batteries of floodlights which occupy much of the overhead space. Upwards of four hundred foot candles is necessary at the present time, although improved sensitivity of the

cameras points to a reduction of this intensity in the near future.

**Direction:** All activity of cameras and microphone is directed from the control room by the program producer who follows a script of the show and is in telephonic communication with the camera men and microphone operator through ear-phones. The producer sees the images from all cameras on video monitor tubes; he hears the audible part of the show through a monitor loud speaker; he also sees all action in the studio through a glass partition between the control room and the studio. The program producer in the control room may also see images from the cameras in the film projection studio. In current practice the control room is elevated above studio level. Assisting the producer in the control room are the technical director who sits next to him and handles the actual cueing of all operations, the audio monitor, who controls the strength and quality of the audio signal, and the video monitors, who control the characteristics of the video signals which produce the visible pictures. The television audience in their homes hear and see exactly what the audio and video monitors hear and see in the control room.

**Transmission:** As three or more cameras are in simultaneous operation the program producer (or his technical director) selects the image from one camera to be switched onto the line for broadcast. While this camera is on the line, the other cameras are directed into position for subsequent shots.

Shows may be telecast impromptu, in which case the above is a description of what happens, or they may be telecast only after several camera rehearsals, during which a sequence of camera shots is plotted in the script, and a high degree of precision is reached before the show is actually telecast.

## GENERAL REQUIREMENTS OF THIS PROBLEM:

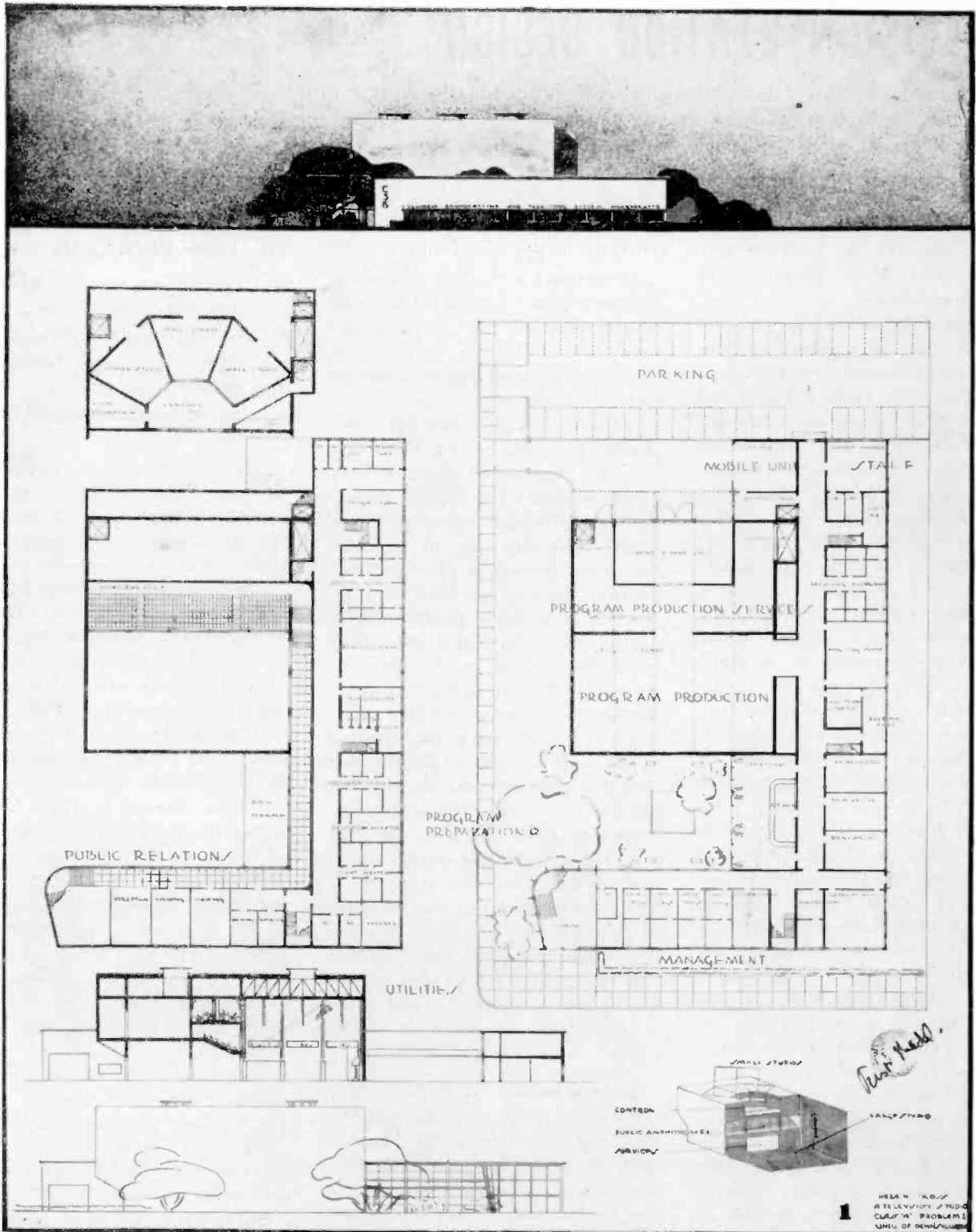
- A. To produce, manage, administer and sell telecasts.
- B. To satisfy public curiosity about television through tours of inspection, etc.
- C. To publicize television by display, etc.

The subject of this exercise is to design a television studio; to be located in a large city, for broadcasting all categories of programs. The studios must accommodate any type of performance to which audiences are accustomed. They should also provide for the development of programs as yet unimagined, which will be as characteristically television as the Jack Benny program is radio.

This problem requires one large studio and three small ones for live talent programs. This is a logical extension of present practice. It anticipates the presentation of a variety of programs in continuous sequence, requiring that the small studios be used when shows are being changed in the large one. (A symphony orchestra could not be set up in the large studio without making noise. A boxing ring could not be set up while other programs were being produced.)

It is emphasized that the program producer, from his position in the control room must have clear vision of all video monitors and into all live talent studios. This feature is unique and open to originality of solution.

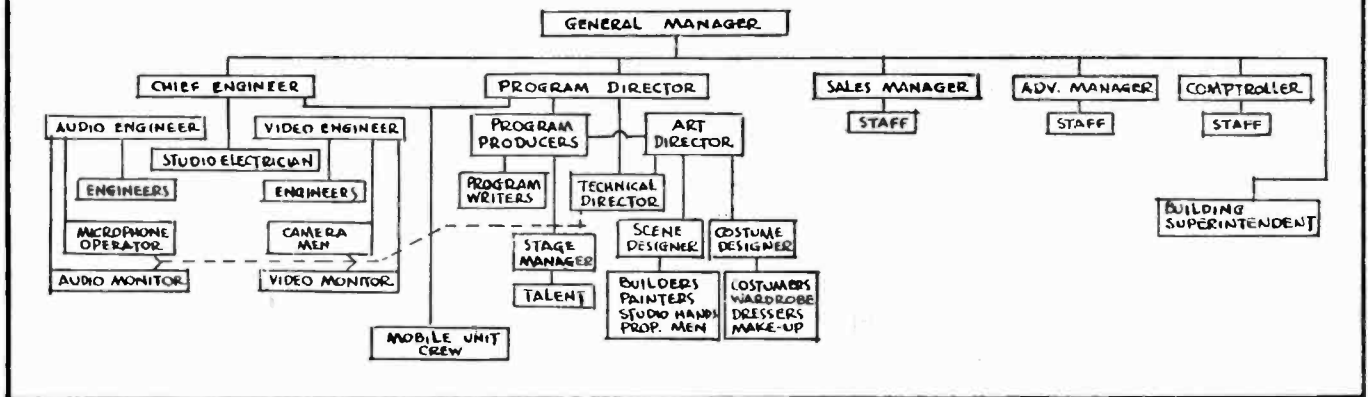
Inasmuch as television is new, the building must provide amply for the additional functions of (1) satisfying the general public's curiosity about television, and (2) publicizing it among potential program sponsors. Display and guided tours should be provided for. Visitors will be permitted to see the show as it is being produced in the studios or as it is being received on typical home sets. Separate circulation for sightseers is desirable.



First medals were awarded to H. C. Ross and M. T. Wilcox of the University of Pennsylvania for solutions well above the others in quality. While they bore considerable resemblance to one another, they nonetheless showed individuality in the detail. Both were straightforward, manifestly workable solutions as to plan, achieving satisfactory operational integration, good use of plot and predominance of outside rooms where fenestration could be of some use. In the design by Miss Ross the relation of services, public amphitheater, control room and smaller studios, is particularly forthright and commendable. The film projection room is so located that fire preventive precautions can be taken. Arrangement for guided tours and studio audience is good.

## ORGANIZATION DIAGRAM

### ORGANIZATION FOR A TELEVISION STUDIO



## DETAILED REQUIREMENTS:

### A. Management

1. Lobby (1,000 sq.ft.) Reception Desk. Display.
2. General Manager's office.
3. Program Director's office.
4. Chief Engineer's office.
5. Sales Manager's office.
6. Advertising Manager's office suite.
7. Comptroller's office.
8. Conference Room (600 sq.ft.)
9. General office area with desks and files (900 sq.ft.)

All offices from 2 to 7 inclusive are two-room suites about 400 sq.ft. each.

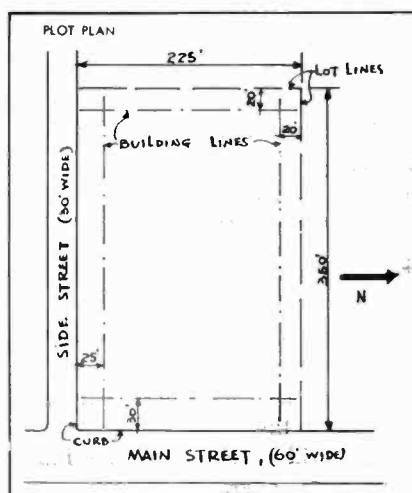
### B. Program Preparation

1. Six program producers' offices (150 sq.ft. each)
2. Six script writers offices (150 sq.ft. each)
3. Art Director's office (300 sq.ft.).
4. Library for books, scripts, music, transcriptions (400 sq.ft.).

### C. Program Production Services

1. Dressing Rooms (2200 sq.ft.) as follows:  
Two for stars (100 sq.ft. each), each with connecting toilet, shower and lavatory.  
Ten for two people each; lavatory in each.  
Two for twenty people each; four lavatories in each; connecting toilets and shower rooms for each. (For all but stars, figure 50 sq.ft. per person).

2. Costume Shop (300 sq.ft.)  
Construction and maintenance of costumes.  
Near dressing rooms.
3. Costume Storage (500 to 1000 sq.ft.)
4. Scenery and Property Shop (2000 sq.ft., 20 ft. high)  
Construction and painting of scenery and properties.  
The paint shop will have a paint frame at long wall, to sink through slot in floor or a paint scaffold on hoists.  
Provide easy access to all studios via wide and high doors and corridors.
5. Scenery Store Room (1000 sq.ft.) One section 16 ft. high.  
Storage of scenery for re-use.  
Scenery is stored in sections 2ft. wide by 6 ft. deep separated by vertical pipes.  
Mezzanines at 7 ft. for bulky objects.



Hoist on trolley over aisles.  
Provide access to studios and scene shop.

6. Property Store Room (1000 sq.ft., minimum height 7ft.).  
Furniture and large properties stored on floor or on galleries.  
Small properties stored in cabinets and shelves.  
Provide access to studios and scene or property shop.

7. Electrical Shop (200 sq.ft.)  
For repair and maintenance of cameras, lighting and television apparatus.  
Near studios and control room.

8. Design Studio  
Making of pictorial effects to be used in programs; slides; sketches, models, and so-called video effects.

9. Musician's Room (400 sq.ft.)  
Space for instrument cases and lockers.

10. Television Laboratory (200 sq. ft.)  
Research and experimentation by audio and video engineers.

### D. Program Production

1. Large Studio (6000 sq.ft., 40ft. high).  
Large scale production of live talent shows (opera, musical comedy, drama, variety, indoor athletic events). Floor space for at least five sets of scenery, or a boxing ring and seats, or a basketball court. Free movement of four or more cameras, two microphone pedestals, and ten light standards. Space outside scenery area for

storage and shifting of other scenery and for movement of personnel. Consideration should be given to providing proper form for good acoustics and to sound absorbing treatment as required.

Overhead equipment for the suspension, raising, and lowering of scenery and lighting instruments. This equipment should be capable of lateral movement in two directions. Hoists on trolleys or stage rigging equipment may be considered. Access to overhead equipment by studio personnel is desirable, possibly by catwalks as in a movie studio.

(See Public Relations below regarding Studio Audience.)

### 2. Three Small Studios (900 sq. ft. each; 20 ft. high).

Production of live talent shows on a small scale (interviews, commentators, soloists, lectures, demonstrations).

Scenery to be handled on floor only.

Overhead equipment for hanging and operating lighting equipment. Two cameras, maximum, in each studio.

Controlled acoustics.

### 3. Film Projection Studio (400 sq. ft.).

Two 35 mm., two 16mm., two slide projectors, focused through apertures in fireproof wall onto lenses of television cameras. Cameras move from aperture to aperture on tracks, to allow multiple use. Separate fireproof compartments for cutting film, and storing film. (200 to 300 sq. ft. for both additional to the studio area.)

### 4. Control Room (500 sq.ft.; minimum height 12 ft.).

All programs from all studios are directed and monitored from this room. At one row of desks: program producer, technical director, and audio monitor. They look forward and down toward a bank (floor area 2' 6" by 7' 0") of video monitor tubes, one for each camera (the picture face of each tube is about 8" by 10"); and the line monitor tube, which contains the image being broadcast. They look over the video monitor bank, through a glass partition into the studios. Program producer and technical director must be

able to see successively into all studios except the film projection studio, as the program originates from one studio or another. The audio signal is received in the control room through a loud speaker whose position is optional.

(This room contains considerable electronic apparatus too technical to describe, but generally resembling amplifier racks; also turntables and controls for "dubbing" sound on some programs.)

### 5. Three Rehearsal Rooms (600 sq.ft. each).

#### E. Public Relations

1. Reception Room (600 sq.ft.). Lounge character. Guided tours might start here. May contain display material.

2. Visitor circulation to be separate from operating traffic.

3. Studio Audience Amphitheatre (200 seats).

Accessible from visitor circulation and from office section.

Should view operations in the large studio with reasonably good sight lines.

4. Viewing Rooms.

Two small rooms for prospective clients (200 sq.ft. each).

Two large rooms for groups of visitors (600 sq.ft. each).

Here visitors may see programs as they appear on receiving sets.

#### F. Staff Accommodations

1. Locker-room Lounge (600 sq.ft.)

2. First Aid Room (150 sq.ft.)

3. Cafeteria and Kitchen to serve 50 at one sitting.

#### G. Mobile Unit Garage and Repair Shop (1000 sq.ft., 12 ft. high).

#### H. Parking—50 cars.

#### I. Building Utilities

1. Air conditioning throughout.

2. Water, light, heat, power.

3. Toilets and lavatories for public and office staff.

4. Toilets, showers, and lavatories for performers and studio staff.

#### J. Unassigned Space (1000 sq. ft.)

This space should be distributed through the building for uses which will develop when the building is in operation.

## V. SITE:

The trend toward decentralization has indicated that the site should be some distance from the crowded center of a large city. It must be conveniently located with reference to public transit lines and main streets. The accompanying plot plan shows the site selected for this problem. There are large trees standing on the property. There are no restrictions as to the character of building since the neighborhood is in the process of redevelopment.

## VI. DRAWINGS REQUIRED:

1. Plan of site also showing main floor plan at 1/16" scale.

2. Plan of studio floor if different from the above, at 1/16" scale.

3. Plans of other floors as required to explain the design at 1/16" scale.

4. Section of entire building or group taken through main studio at 1/16" scale.

5. Elevation from main street at the scale of 1/16"=1'0".

6. Elevation from side street at the scale of 1/16"=1'0".

7. Perspective sketch or isometric to explain the design or some special feature.

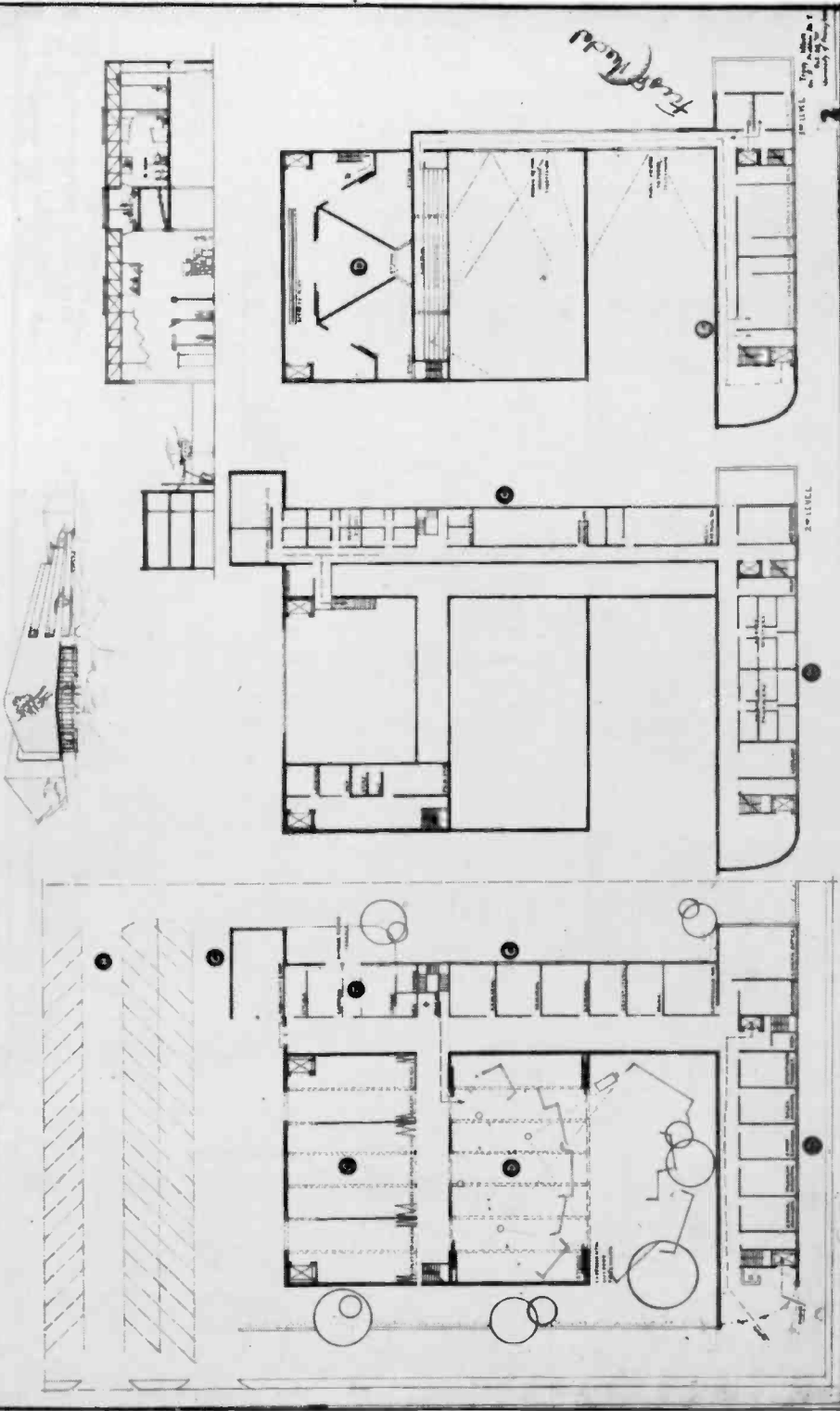
## CONCLUSIONS

The major requirement for a solution to this problem was an eminently workable arrangement of the main studio, studio organization, the control room, and studio audience. A serious fault in some solutions was to place the audience amphitheater and the control room at opposite ends of the studio thus causing the studio audience to see only the back of the scenery and the back of the action taking place in the studio. The studio audience viewpoint and control room viewpoint must obviously be quite similar. Solutions were deemed faulty wherein the control room had a satisfactory relation to the main studio but a poor relation to the other studios. It was evident from several solutions that architectural students must be reminded of the natural functions of mankind and that adequate toilet facilities must be provided in the plan. It may also be noted here that, in practice, star performers do not like second story dressing rooms.

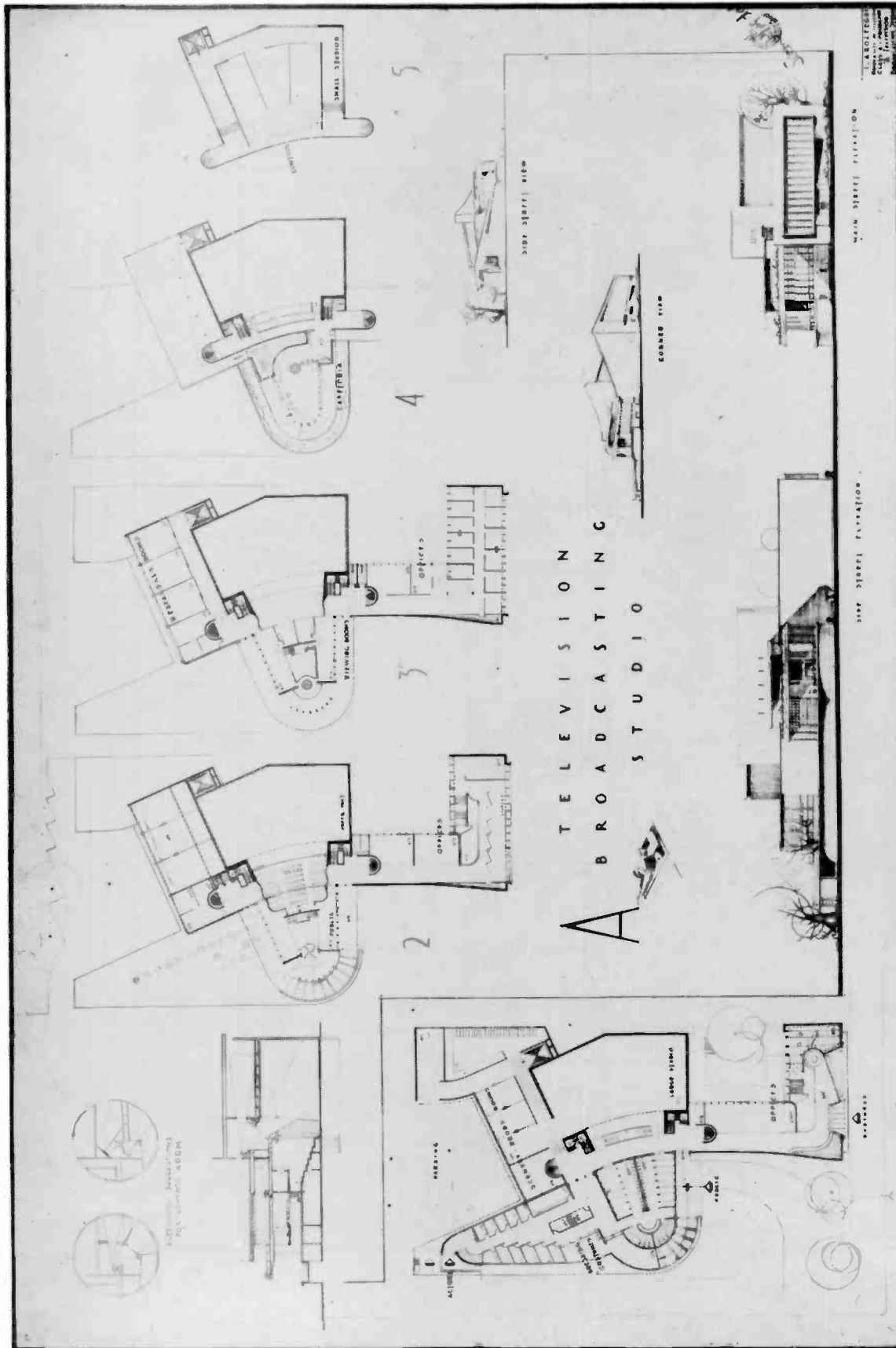




# A TELEVISION BROADCASTING STUDIO



The solution by Miss Wilcox is weak in its location of the film projection room, lines of sight from the audience amphitheater (an easily remedied fault), and access to the control room. Her ideas for folding partitions between the shops and the main studio and sliding doors between the main studio and the outside court are good. The introduction of considerable flexibility into the uses of the small studios by means of sliding doors and scenery slot is ingenious and well suited to television.



Aroztegui, University of Illinois was awarded a second medal. The functions of the studio in his submission are well separated and expressed in the plan and reasonably well related to each other. The elevations show considerable more development than do most of the submissions. Conversely the internal aspect of the building is rather tight. Provision for studio audience is excellent. The control room solution is noteworthy for its ingenuity rather than its perfection and offers a solution which, though unsatisfactory as shown, is nevertheless a possibility. Its unsatisfactory quality lies, among other things, in the distance and lack of easy communication between director and his assistants.

# EDUCATIONAL FILMS AND TELEVISION

by HENRY CLAY GIPSON

*The important place of educational films in television is outlined by Mr. Gipson, general manager of Springer Pictures, producers of educational and industrial films. Mr. Gipson has directed many educational and training films and is the author of three photographic books.*

Television is in its tin-type stage and the people before the cameras are having a lot more fun than those who witness the resulting contortions on the screen. In this field-day of experimentation, the important educational uses for television have been largely overlooked. Yet "how to do it" programs will have a wide appeal according to recent findings of the CBS Television Institute where studies by Oscar Katz and Ernest Dichter indicate that education is one of the gratifications television audiences will expect.

Perhaps I feel so strongly about the educational potentials of the television screen because I have been daily involved in the great educational development which the war has brought to another almost identical screen—that of the non-theatrical motion picture. A television set and a 16 mm projector are practically identical from the observer's point of view. The difference lies behind the scenes. In television, the audio and visual impulses come by air—in the movies, they are manually transported on a strip of film. Therefore, in considering the future of television, it might be well to temper our opinions with a short review of the development of the educational motion picture.

It is interesting to know that the early scientists, Muybridge, Marey, Edison and others, who developed the motion picture envisioned its future almost exclusively in the field of science and education. However, when American business men and showmen began to appreciate and exploit the tremendous entertainment possibilities of the screen, its value in the field of education was almost forgotten. It was not until after the first World War that any great amount of activity in audio-visual education took place. It was then that extensive



Sewell Booth of Springer Pictures

surveys were undertaken to analyze the effects of the theatrical motion picture because civic and religious groups claimed that films were doing great harm with their frank portrayal of the flapper age. The results of these surveys shocked the nation, for it was demonstrated that films which glorified evil were definitely responsible for juvenile delinquency. The widely publicized and much discussed facts led immediately to a voluntary

censorship of the motion picture industry. These facts also demonstrated, beyond the shadow of a doubt, the great educational power of the screen. If films could do harm, they could certainly do good, and educators began to realize that in this audio-visual medium, they had a means of communication without parallel for the transmission of thought in systematic educational procedures.

Gradually schools began to use films. Some idea of the progress made can be seen from the fact that the public schools of Chicago projected films 647 times in 1929-30 and 60,000 times in 1935-36. By 1940 there were approximately 15,000 sound projectors in use in colleges, high schools, and elementary schools in the United States. But if this advancement was rapid, an even more dramatic development in the history of education came with the second World War. The U.S. Army and Navy faced with the necessity of training masses of men in the intricate problems of modern warfare, began to use films in unprecedented numbers. First hand experience showed that films were speeding training to an appreciable extent. They were multiplying the teaching skill of the best instructors and setting up standards of instruction in the many various widespread training centers. The size of the program can be judged from a report to Congress in June, 1943, which stated that the Navy had 830 reels of film in production; the Army, 1,250 reels; the Office of Education, 187 reels; and that the Department of Agriculture had released 39 reels during the preceding year. Navy film production alone was costing more than the expenditures of any two Hollywood studios at their peak periods. Each month from 30 to 60 thousand prints of Navy subjects were being shipped to bases at home and abroad. Experience indicated that training time was often cut as much as 40% over the time required for similar work in the last war when practically no films were used for training. All of this points to a greatly expanded post-war future for the educational film.

While the use of films is largely confined to group instruction, television will make it possible for individuals or family groups to obtain the benefits of audio-visual instruction which it is now impractical for them to get since it takes considerable effort and a good deal of expense to obtain and project a sound motion picture. In the future, one need only to flick a dial for a choice of entertainment or educational programs.

It is not my contention that educational or how-to-do-it films will ever lead in any "Crossley" poll of televi-

sion. The big audience programs will undoubtedly be those which cover important news or sporting events or the expensive theatrical type productions. However, there are not going to be enough advertisers with enough money to use more than a fraction of the television time for high grade audio-visual program which can meet the entertainment standards Hollywood has created. This is where the great opportunity for educational television rests, for educational programs can be well done at relatively little cost—a cost compatible with the market.

As the world grows older, people are bound to have more and more leisure. Industrial production has already magnified the productive capacity of man—up to ten thousand times in some industries—and improvements are constantly being made in practically all fields of human endeavor. Thus people must find something to do with their non-productive time. Some will want to study the arts; others will concentrate on improving their ability at sports; while the practical minded will want to learn a new trade or improve their education. Almost everyone will have a hobby and want to learn something. Through television we can give these people the proper know how. We can acquaint them with the skill required to use many varied products. *And what could be finer advertising than to actually show the use of a product!*

### Radio Philosophy

Perhaps the present "radio" philosophy which seems to dominate television is responsible for the lack of interest in educational programs. But radio is a very different medium from television. Psychologists estimate that 90% of our learning comes through our eyes and only 5% through our ears and the remainder through our other senses. This is why radio has seldom been used for instruction—and why television may find a large future in educational programs. It may well be that certain stations will devote themselves exclusively to educational programs

Films will undoubtedly be extensively used as a basis for television

programs. They will be especially designed for the purpose and they will, undoubtedly, be as different from regular movies as radio transcriptions are from phonograph records. In fact, they will even be taken at a different number of frames per minute. We all know the advantages of films for many television uses—to telescope the time angle; to provide repeat performances where networks are not available; to insure perfect performances on split second timing; to present many locations in one continuity; to provide a record for legal purposes; and to permit careful selective editing, utilizing the best of several takes. When we consider educational television, the advantages become more important.

For example, the obvious fact that a telecast from a film original can easily be repeated is most important from a cost angle. Educational audiences will be comparatively small and even though the selling job done is exceptional, it may be difficult to realize a suitable return from one telecast. By working from a film original we can use the same program not only in different localities, but also after a suitable time lapse repeat it over the same station, perhaps with minor changes to bring it up to date. In this way a new audience can be started with the fundamentals of a subject and gradually carried on through its more complicated phases. Such a use for educational films will be especially important if television stations are erected for the sole purpose of disseminating education.

The average person who views a present day educational film doubtless does not realize the immense amount of planning and supervision that goes into these productions; the script conferences, the photography, the editing, the recording; the involved process by which the educational film producer translates the ideas of educator and subject expert to the language of the screen. We, of the educational film producing fraternity, know by intimate experience of the many problems involved in audio-visual education. It seems highly probable that educational programs which are presented by live action will be easy competition for our carefully planned and perfectly executed film product.

# LOS ANGELES TELEVISION OUTLOOK

Each month Television will analyze the video plans for a leading city.

Horace Greeley's statement "Go West, young man, go West" will again come to the fore when television gets under way, for Los Angeles is certain to become one of the major television centers in the country.

The metropolitan trading area takes in almost 3,500,000 persons and is responsible for an annual retail sales figure of approximately \$1,500,000,000. Checking the contour and trading area maps, below it is apparent that a 25 kw video transmitter will pretty much reach throughout the metropolitan trading area. Perhaps this is why Los Angeles

ranks as one of the country's most television favored cities.

At the present time Los Angeles receives a limited program fare from two experimental outlets.

These are the Don Lee station W6XAO and W6XYZ of Television Productions, Inc, each programming two or three hours a week.

A look at the present and proposed television picture in Los Angeles shows:

2 experimental stations on the air  
2 commercials under construction (KSEE, Earl Anthony; KTSL, Don Lee)

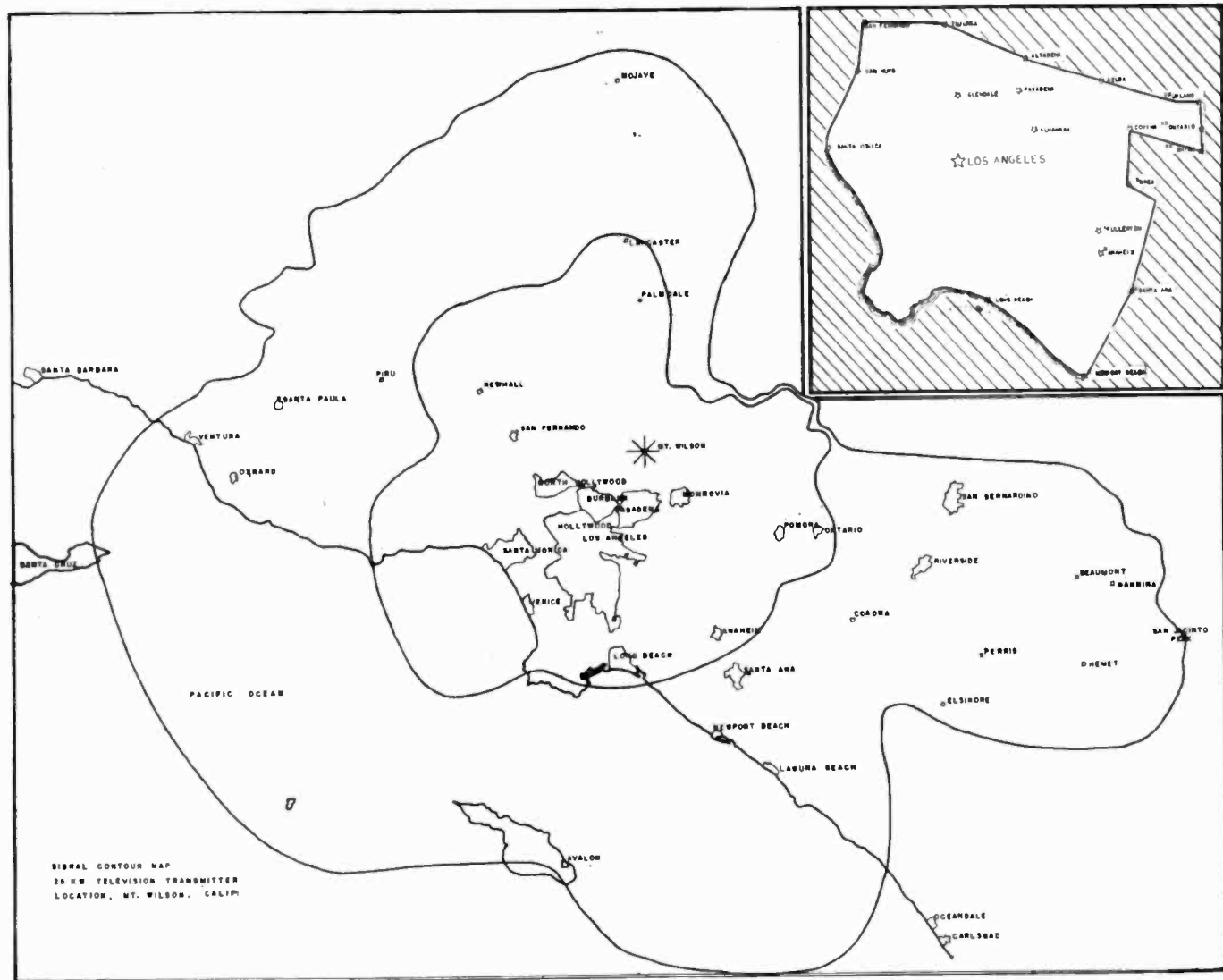
9 applications for new commercial stations pending at FCC

1 application for new experimental stations pending at FCC

1 application for new experimental relay pending.

## Don Lee

The Don Lee station KTSL, given an FCC permit back in August 1941, has applied for a further extension of time in which to complete construction. Don Lee which has squatter's rights on Channel No. 1 (56-



Contour map courtesy of Allen B. DuMont Labs. Metropolitan trading area map courtesy of Los Angeles Chamber of Commerce.

Contour map showing primary and secondary areas. Calculated signal strength of primary area is five millivolts. Outer contour line (secondary area) shows the calculated 0.5-millivolt signal limit. Small map in upper right-hand corner is of metropolitan trading area. 25 kw station easily covers metropolitan trading area.

60 mc) in the Los Angeles area is building at 3800 Mt. Lee Drive, Hollywood.

*Earle C. Anthony*  
141 N. Vermont Ave.  
Los Angeles

They are requesting reinstatement of a construction permit for commercial television station KSEE which Anthony allowed to expire. At the same time he wants to modify the terms of his construction permit to give 95% coverage of the Los Angeles metropolitan area rather than the 91% possible at the transmitter site and with the aural equipment he proposed using originally.

Anthony is asking for Channel No. 6 (96-102 mc), and plans to use RCA-transmitter equipment with visual power at 3 kw and 1 kw aural. He hopes now to locate his transmitter either on Mt. Wilson in the San Gabriel range at an elevation 5728 feet or on Mt. Harvard at an elevation of 5440 feet. Both sites are about 16 airline miles from the center of Los Angeles, about 115 miles from San Diego and 93 miles distant from Santa Barbara. Either site would give line-of-sight coverage of greater portion of metropolitan Los Angeles and most of the inhabited region within a 130-mile radius. His application estimates total cost of KSEE at \$163,000, with a monthly operating cost of \$9,250. Anthony is licensee of KFI in Los Angeles and is also in the automobile finance and insurance business.

*Hughes Productions, Division of Hughes Tool Co., Inc.*  
Howard Hall, in charge of television  
7000 Romaine Street  
Los Angeles

Hughes' permit for an experimental station has expired. The company's application for a commercial station has been set for hearing and continued indefinitely under the FCC freeze on use of materials. Hughes has applied for Channel No. 2 (60-66mc) and will use RCA transmitter equipment with power of 10 kw, visual and aural.

The principal business of the company is the manufacture of oil well tools and a subsidiary interest in

motion picture production. Hughes has earmarked \$2,000,000 for television development and is primarily interested in use of film for television and inter-city radio relays.

*Warner Brothers Broadcasting Corp.*  
5833 Fernwood Avenue  
Hollywood

Has applied for a commercial station on hilltop site outside metropolitan area to operate on Channel No. 3 (66-72 mc) using RCA transmitter with 4 kw power, visual and 3 kw, aural. The company's principal interest is motion picture production and its interest here is use of film in television network programming. The anticipated cost of transmitter and studio equipment is \$342,500 with a monthly operating average of \$7,500. Warner's has filed elaborate program plans with the FCC. If approved, the station will service about 2,142,000 people and start operations with 2½ hours a day.

#### *Columbia Broadcasting System*

CBS has filed application for an experimental television station in 460-476 megacycle range to be located on Mt. Wilson near Pasadena. They plan to use General Electric transmitter equipment with 1 kw peak power and plan experimentation in the field of high-definition full color television.

CBS estimates its total equipment costs for Los Angeles experimentation at \$500,000, and station operating expenses over a year period at \$25,000. Dr. Peter Goldwark and Robert Serrell will supervise engineering research at the station.

*Television Productions, Inc.*  
Los Angeles

Has application pending before FCC to convert its experimental station W6XYZ to commercial status. W6XYZ operates on Channel No. 4 (78-84 mc) and programs about two hours a week. DuMont equipment is used. Television Productions also has permit for an experimental television relay station W6XLA for operation with W6XYZ.

The company has filed applications with FCC for two more experimental relay stations using Channel No. 9

and 10 (180-192 mc) and 11 and 12 (204-216 mc) with power of 100 watts. Equipment and other costs for proposed experimentation have not yet been determined. Paul Raibourn, president assisted by Klaus Landsberg, will direct the research and experimentation.

The application states the company plans to operate mobile units to form two television radio-linked networks. The first network will connect New York City; Peru Mountain, Vt.; Buffalo; Detroit; Chicago; Des Moines; Kansas City; Albuquerque, and Los Angeles.

The second network will link Los Angeles; El Paso; Fort Worth; Houston; New Orleans; Birmingham; Atlanta; Charlotte; Richmond; Washington, D. C.; Philadelphia and New York City.

A wholly-owned Paramount subsidiary, the company plans extensive research in the use of film for television and the possibilities of theatre television. Raibourn has been economist for Paramount since 1920 and before that time was on the engineering staff of Western Electric. He is also treasurer of the Allen B. DuMont Laboratories, Inc.

*Metro-Goldwyn-Mayer Studios*  
Los Angeles

Wants Channel No. 8 (162-168 mc) for a commercial station. Principal business of Metro, a wholly-owned subsidiary of Loews, Inc., is motion picture production. Plans to use a General Electric transmitter, 4 kw power. Total station cost is estimated at \$142,250. The company has filed elaborate program plans with the Commission and proposes to operate six hours daily. One third of its programs will be commercial and two-thirds sustaining. Of the 180 hour on the air every month, Metro proposes to have 30 hours of outside pick-up shows, 100 hours of studio productions and 50 hours of films.

#### *National Broadcasting Co.*

As part of its plans for a basic nation-wide television network, NBC has applied for a commercial station at a site on Mt. Wilson and is asking for Channel No. 3 (66-72 mc), using RCA transmitter equipment with power of 3 kw. NBC has other commercial tele applications on file for

Denver, and San Francisco, Washington, D. C., Chicago and Cleveland. Its Los Angeles operation will cost a total of \$202,500 with an estimated monthly operating expense of \$6,500. NBC plans to have the station on the air a minimum of 15 hours a week broadcasting chain programs.

#### *Blue Network Co., Inc.*

The network has applied for a commercial outlet on Channel No. 8 (162-168 mc), using transmitter with power of 4 kw visual and 3 kw aural. Plans to locate transmitter on Mt. Wilson. Estimated total cost of transmitter and studio equipment is \$184,250 with an average monthly cost of operation of \$13,000. The station would serve about 3,045,000 people in the Los Angeles area. The station will be on the air at least 15 hours a week.

#### *Consolidated Broadcasting Corp., Ltd. C. Merwin Dobyms, President 435 Pine Avenue, Long Beach*

Consolidated wants a commercial station operating on Channel No. 7 (102-108 mc) atop a mountain 3½ miles northeast of Pasadena. They plan to use RCA transmitter equipment with visual power of 4 kw and aural power of 3 kw.

Consolidated already owns the land of its proposed transmitter site but will spend about \$97,500 for equipment. According to its application, the station will broadcast about 30

hours a week, about 50% of its time will be devoted to entertainment programs, equally divided between live and films shows; 25% to educational and religious fare and 25% to newscasts. The transmitter site is eight miles from standard stations KPPC and KWKW and their application proposes coverage of about three million people.

C. M. Dobyms is president and director of Consolidated and has had 18 years broadcasting experience as licensee of KGER.

#### *Times-Mirror Co. Norman Chandler, President 202 West 1st Street Los Angeles*

Has applied for a commercial station on Channel No. 5 (84-90 mc) and plans to use General Electric transmitter equipment, 40 kw power, visual and 20 kw, aural. The proposed transmitter site is 2.8 miles north of Sierra Madre on the edge of a mountain range at an elevation of 4,775 feet, about 8 miles distant from KPPC and KWKW transmitters.

The Times-Mirror has appropriated \$350,000 for its studio and transmitter equipment. If this application is approved by the FCC, the company will apply for a studio-to-transmitter relay at an additional cost of about \$16,000. The station plans to serve about 3,156,000 people and will broadcast at least 15 hours a week to start.

#### *Broadcasting Corporation of America Riverside, California*

Plan to build in Riverside. They have applied for channel No. 3 with a proposed power visual of 3 kw and aural 4 kw. They estimate the total cost of the plant will be in the figure of \$104,000.

#### *Final Score*

This brings us to a final score of eleven applicants for a probable seven channels available (based on proposed FCC allocations and Television Broadcasters Association proposals).

Final grants of stations, in most cases, will be decided on the basis of choosing the applicants best able to undertake the venture and who will, in the Commission's judgement, best serve the public interest, convenience, and necessity. The best indication of this viewpoint is in the recent speech by Paul Porter, FCC Chairman, who stated that "FM and television grants will not be made on a first come-first served basis. We hope that in most communities there will be enough channels for all qualified applicants; where that is not the case, grants will be made after hearings to those best qualified—not to those under the wire earliest."

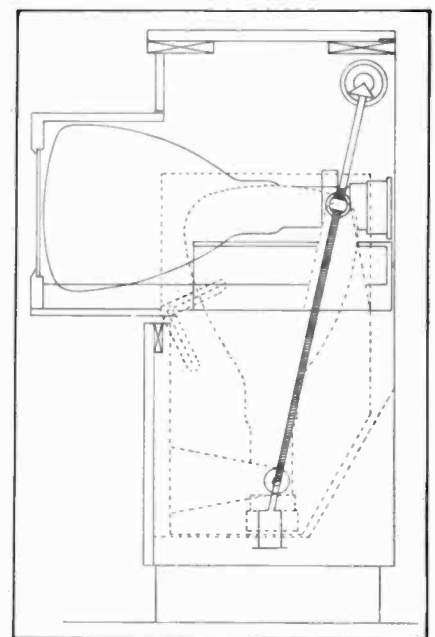
Next month Television will cover Philadelphia. Write in your requests for the city you would like covered.

## DuMONT LARGE SCREEN

Latest company to show post-war models of large screen television is Allen B. DuMont Laboratories. Company recently demonstrated a projection set producing a picture 3 by 4 feet. Set had sufficient contrast to enable viewer to witness television show without darkening the room. DuMont plans call for this model to retail at \$1800. Real winner though is their 20-inch tube direct viewing set. It gives a picture 18 by 13½ inches which is sufficiently large enough for home viewing. The set has a brilliance and high definition which is tops. Only draw-back is roundness of face of tube which distorts objects on side of picture. Company officials

claim that they will eventually be able to eliminate this distortion. This model will retail for \$450 up.

Sketch shows space-saving device which permits cabinets only 24 inches deep despite the greater length of the 20-inch cathode-ray tube. Heavy lines show the screen in viewing position. Dotted lines indicate position of the tube in the concealed position to which it is mechanically retracted when the set is not in use. The mechanism is activated by a pushbutton which starts a small silent motor. This brings the tube into viewing position in 10 seconds. The tube is retracted by pressing the pushbutton a second time.





# ONE MAN'S REFLECTIONS

A Regular Feature by DR. ALFRED N. GOLDSMITH

## Cleaning Television Channels

An unoccupied house soon has dust-covered floors, mildewed walls, and broken windows. Unused radio channels are similarly invaded by electrical parasites, strays, and vagrant signals. Accordingly when previously unoccupied radio channels are turned over to public use, it is not unusual to find that a thorough "spring cleaning" is needed.

Television broadcasting may anticipate the assignment to it of a group of commercial channels, most of which have never been used for television, and another group of experimental channels, none of which has found television applications in the past. It behooves the television broadcasters to examine their new "ethereal premises" and to propose such measures as will put these new quarters for television into spick and span order.

This brings up the question of what is required to put a television channel into good usable shape. The criterion is relatively simple in principle though more difficult in application. It is the following: Within the normal service range, or within the appropriate coverage area of a television station, the total man-made and natural interference level shall not be sufficient to cause objectionable degradation of the picture or sound quality of the program. There is a sort of obligation upon the broadcaster to use adequate transmitting power so that, over a reasonable area, his station shall lay down signals of good strength. For television purposes, this means that the signal strength shall be adequate for distances somewhat beyond the optical horizon, as seen from the station-antenna location.

Assuming, then, sufficient power in the transmitter to lay down a good signal somewhat beyond the horizon, anything electrical which nevertheless intrudes into the program should somehow be eliminated.

As it happens, the human eye is quite sensitive to disturbances in the television picture. If these disturbances are slight, they may cause a graininess, or lack of smoothness and definition, in the television picture. As the disturbances become more pronounced, they may cause white or black spots that flicker about the picture area. And when the disturbances become still more severe, they may destroy picture quality altogether or even cause the "tear-out" of parts of the picture unless special circuit means are adopted to avoid this. Other types of electrical disturbances cause fixed or moving black shadows that injure or obscure parts of the picture. The effects of electrical disturbances on the sound portion of the program are already well known from past broadcasting experience.

It is clear that we cannot control natural electrical disturbances. Fortunately, these disturbances are quite low on frequencies above 50 megacycles where television broadcasting will be found.

The major trouble arises from man-made electrical disturbances. These are controllable, though not always by simple and economic means. The main types of man-made disturbances include some of the following. Local physicians or hospitals may have diathermy or other medical equipment using high-frequency electrical oscillations for curative purposes. These equipments are powerful, and stray radiation from the equipment itself or the attached power lines may cause objectionable picture shadows or even total destruction of pictures over fairly large areas adjacent to the diathermy outfit. The complete shielding of such medical equipment is possible at some cost in the case of fixed equipment. So far as portable equipment is concerned, such shielding may prove difficult or even impracticable. A

suggested solution has been to place all diathermy equipment on its own band or bands and to require that no harmonic or other radiations from such equipment shall fall within the channels allotted to other services.

Various types of industrial equipment will also use high-power radio-frequency generators, and may likewise cause television interference. Such equipment will either require shielding to prevent injurious radiation or must be assigned to its own channel outside of the frequencies allocated to any other service.

Interference from automobile-ignition systems may be quite serious in television reception, particularly if a road much frequented by old automobiles passes close to the receiving antenna. There are various ways of reducing this interference, either by shielding the ignition system or suitably locating the receiving antenna, or the like. Coordination between the radio and automobile industries will greatly help in this connection.

Airplanes flying overhead may cause disturbances, and occasionally even "ghost" pictures. Until aerial traffic becomes far heavier than at present, most locations will probably experience little trouble from this source.

Many devices used in the home, and the switches which turn them on or off, are capable of producing interference with television reception. Proper filter circuits and suitable construction can greatly reduce such troubles. Possibly household electrical devices of the future will carry an authorized brand: "Not producing radio interference" or the like, if they meet certain specifications which may later be adopted. Such specifications might indicate the maximum allowable interference to be produced by any device carrying such a label.

It has been proposed, as a possibil-



ity, that television channels will be shared with certain other low-power services. If this is done, it will be necessary to ensure freedom from interference between such services which share a given channel.

When television broadcasting starts, it is to be expected that the channel premises which it occupies will at first be somewhat dusty, so

to speak. Electrical heritages of the past in the form of interfering signals will be found. But a gradual clean up job can be carried out, and doubtless this will be done.

If the cleaning of television channels from any unreasonable interference is carried out by voluntary action, intelligent planning, and intra-industry cooperation, nothing more

will be required. If these desirable measures, should not be carried out, the proposal may be made that television interference should be eliminated by statute or regulations. In one way or another, it is certain that clear television reception, free from undue interference, will be available to the vast majority of the American public.

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## PATENT AND LICENSING PICTURE

Any analysis of television patents must be purely conjecture. The radio and television patent picture is extremely complex and in view of meager adjudications extremely indefinite. Recent termination of licensing agreement between Philips and RCA is an indication that all patent holders are clearing their decks for action.

There will probably be four or five companies who will play a dominant part in television licensing. Undoubtedly, there will be many other companies and individuals who will have various designs as well as basic patents pertaining to television which will have to be considered in the over-all picture. As in standard radio, RCA will still probably be the main factor but by no means will it have as clear cut a hold as it has had in the past. Comparative newcomers like DuMont and Farnsworth will be strong contenders for a piece of the television patent pie.

DuMont will be particularly strong in the cathode ray tube field but will probably have a stake in the receiver end because of some basic scope designs. Farnsworth has a strong position and has the American rights to television patents of Fernseh in Germany. Philco will certainly have a say on flat face tubes although we should not forget Fernseh's pre-war flat face rectangular tube.

While RCA has probably done more in radar than any other company, research work in this field by others will probably keep companies like Hazeltine, General Electric, Philco, Federal, etc. in the running, par-

ticularly in ultra high frequency circuits and microwave relay work.

Color television is another field with an abundance of claimants. Baird of England has worked out a system. So has Peter Goldmark of CBS. Dr Alfred N. Goldsmith has filed on an electronic color system as has Alexanderson of General Electric.

The fact that television receivers will use FM and probably incorporate a separate radio set obviously will further complicate the picture.

At the present time RCA has entered into licensing agreements with Farnsworth and DuMont. These agreements however, do not incorporate re-licensing privileges. This is in addition to its old standing set-up with General Electric, Westinghouse and A.T. & T. The old agreement enables RCA to incorporate in its license all patents that these three companies have. DuMont has also entered into agreement with the Government whereby it has licensed them for the duration of the war under its patents. In consideration for this the Government has agreed to pay DuMont a yearly sum of \$150,000.

As time goes on there will no doubt be much more activity in cross licensing, limited licensing agreements, etc. between the many patent holders. The biggest headache will come in the international patent structure. Electric and Musical Instruments, Ltd. (English); Telefunken (German); Pye (English); Philips (Dutch and American); Fernseh (German); Baird (English) and a few French companies, all probably have some basic video patents. It will be very interesting to observe what licensing agreements these com-

panies will enter into with American companies.

Patent lawyers and engineers are now busy building up their companies' claims and negotiating with other patent holders. It will be only a matter of a few months before manufacturers of tubes, transmitters, receivers, and oscilloscopes must decide what licenses to take out. It is at this stage that the patent holders will come up against each other. Decisions on this question by manufacturers will not be easy to make. There will be claims and counter-claims and probably much overlapping of circuits and designs.

Theoretically, the solution to this complex problem might well be in the creation of a patent pool or some form of patent syndication as recently suggested by Captain Dow, U.S.N. The idea of patent pools has come up many times in the past but there were always a few companies who felt they had more to lose than to gain by pooling their patents with other claimants. Perhaps, in the long run, what they might lose in licensing fees they might gain in savings made by eliminating expensive litigations.

Fortunately though, the complex patent situation should in no way hold up the progress of television. The prospective licensee need not worry too much. His engineers will study what systems and designs to go ahead with and after examining the claims of the various patent holders will decide from what company or companies to take out a license. The licensor will protect him from litigation. No, the problem will be strictly one for the patent holders.

# NOTES ON THE BALLET "SCHEHERAZADE"

by RAYMOND NELSON

According to Raymond Nelson, veteran television producer of the Charles M. Storm Agency, there's a lot to be learned from producing extravaganzas.

When we decided to do "Scheherazade", we searched for a group of dancers who could perform in the Hindu idiom—a terpsichorean method which lends itself ideally to television since it relies largely on gestures of the hands and arms and facial expressions for its effect, instead of on traditional ballet's leaps and bounds which are incompatible with television at the present time. We built our setting to conform to the practicality of today's television prospective. We designed our costumes with a view toward developing the contrasts necessary to make themselves felt over a television screen and, above all, we retained people of the calibre of La Meri and the Natya dancers because, while good talent does not always show at its best on television, poor talent is more insufferably bad in front of a television camera than most any place else. We gave the show plenty of studio rehearsal and plenty of camera rehearsal. We allowed everybody plenty of time for questions, study and suggestions. We planned our camera shots carefully to get the maximum of effectiveness out of what we had to work with. From a production standpoint I was fairly well satisfied with the result. From a purely objective viewpoint I was discontented, because of what we can not do. Staging a full-scale ballet in a comparatively small-scale studio with the attendant complications of pre-war equipment is a rather ambitious project. There just naturally isn't room in the WABD Studios for twenty dancers. With today's insensitive iconoscope and the resultant necessity for maximum lense apertures, you don't get much depth of focus—which is simply optical depth after all—so that you can't get a clear image of four rows of people in simultaneous motion. The fact that we were able to evolve a fairly smooth production under severe handicaps and trying limitations made us feel sort of televisually tri-



Raymond Nelson

umphant. Again, on the other hand, we'd have been something less than human had we not sighed for the improvements we know are around the post war corner.

I had a chance to see parts of the rehearsal on the new large-screen DuMont receiver in the WABD theatre, and could not help but be impressed by the breadth and size of what I saw there. The very essence of ballet, freedom of movement, is defeated by small screen television. Does this mean that we should not do shows like "Scheherazade" until post war studios and equipment are available?

Not a bit, and here's why. We have produced something over one hundred television programs, big ones, little ones and medium-sized ones. I have tried musical shows, dramatic shows, educational programs—which might, incidentally, fall into either of those two classifications—and everything and anything that came to hand. The Charles M. Storm Company has predicated its activity on a sincere desire to explore a new advertising medium, and regardless of what you might hear to the contrary, the school of experience is the only televisual educational institution to loom on the horizon at this

writing. We weren't terribly timorous in our first approach. We were not exactly over-confident either. We found the atmosphere in the original DuMont Studio, the one that Allan DuMont used to good-humoredly call his "Television Kindergarten", extremely conducive to experimental thinking. We started with the simplest and most fool-proof formats we could discover and then went on from there. I am convinced that the "going on from there" is the important part; more than that, it is the obligation of the sincere television producer.

I am certain—and it did not take a hundred shows to convince me—that the producer these days who works with a simple combination of known quantities is making only a limited contribution to the televisual art. He can very easily fall into the pitfall of trying to perfect the technical handling of a fundamentally bad article—and repeatedly does. I am thoroughly satisfied that there isn't any trick television technique that will make a bad show any more than a bad show with good trimmings, and that the television producer who is going to help the art along is, and will be, the man who is willing to take chances at a time when his audience is comparatively small. There's been a lot of this static television repetition, prompted by a combination of a sincere desire to attain perfection of format—and a tendency to follow the line of least resistance. One producing agency slaved away at a quiz show for weary week after weary week. A quiz show without visual help—i.e., vocal questions and answers—is pretty bad video. There isn't much you can do about a program which offers nothing but a series alternating pictures of a not-too-telegenic quiz master and a few bemused contestants—all of them statistically seated, at that. Nevertheless, this show stayed on the air several months, at the end of which

time the sequence was almost always exactly right, the contestants in perfect focus, and the sound levels eminently correct. Nevertheless, it didn't accomplish a darned thing; it was a pretty bad show idea in the first place, and, even at its peak of technical excellence, it was just a good performance of a bad article.

Let's take the televised sports event as another case in point. One of the stations is currently telecasting professional fights from Madison Square Garden and St. Nicholas Arena—doing so under considerable handicaps, the chief of which is the distance of the camera from the ring; the distance being necessitated, presumably, by the importance of not blocking the view of the fellows in the ten-dollar seats. On the other hand, another station is telecasting amateur bouts from its studio; this enables them to take trick shots through the ropes, close-ups on the fighters and any or all other stunts possible under present studio conditions. The simple fact of the matter is that station "A" has the audience while station "B" has, so far as I can find out, very little. The reason is equally simple—the professional fighters know how to fight; the amateurs don't. In other words, there isn't anything you can do with trick camera technique that will make a bad performer anything than what he is, and

the interest in his efforts goes down in direct ratio to the limits of his ability.

We're trying to find more and better program formats, show ideas that will help feed the omniverous televisual maw. That's why we've essayed so many kinds of things, why we've tried projects, deliberately, that we knew were well nigh impossible. It's because we feel the necessity for "know how" that we're willing to cope with fewer facilities—knowing that there's the compensation of scant audience, too. We're trying to make our mistakes in private, so to speak, so that we'll not only know what to *do* when television comes into its own, but, what is ever so much more important, what *not* to do. We're taking for granted the fact that the technical powers—that he will perfect the mechanical aspects of television. Based on our observation of the progress of the WABD plant, if nothing else, we're positive in that conviction. By the same token, we realize that, if today's television programming were to hit ten million sets tomorrow, it would be a distinct deterrent to the sale of ten million more. Our attitude is that it behooves those of us who are active in television production to get a move on, and help television programming get up to the standards of tomorrow's television

facilities, and worthy of tomorrow's tele-audiences.

Does this mean that we are ignoring today's audiences? No, not a bit of it! The producer who steps out of line, in an endeavor to increase his fund of knowledge and add to his technical skill, takes a lot of chances. He risks caustic critical comment, for one thing; he finds himself, frequently, exorcised bitterly by television arbiters who regard every television show in the light of a Broadway first night. He attempts the impossible, and does it constantly. But it's our contention that nothing is ever accomplished unless somebody is willing to try the hitherto impossible. And that person is usually the fellow who refuses to accept the theory that *anything* is impossible.

You probably know the story of the humming bird; if you don't, it's worth repeating here. The humming bird cannot fly; all the laws of aerodynamics says it can't—it hasn't enough wing-spread for it's fuselage, for one thing. Nevertheless, the humming bird, being blissfully oblivious of the impossibility of it all, flies like the dickens—and manages to give out pleasant humming sounds while it does so!

We feel a sort of kinship for the humming bird. We spend lots of time out on a limb ourselves.



Opening scene shows La Meri as Scheherazade telling the tales to the prince. Symbolic Hindu dance scene at right by La Meri and the Natya dancers illustrates the story.

# COMMERCIALS

An interesting program built entirely around a commercial is the recent production of "Say It With Flowers". The show, produced by Bozell & Jacobs, was sponsored by the Society of American Florists and made its debut over WBKB (Balaban & Katz).

The program was built on the theme that some of the biggest moments of our lives often are ones in which flowers play an important part. The format was to bring before the camera a variety of characters, each with a different floral problem depicting life as it is seen in the florist's shop.

The idea behind the commercial

was that by educating the public to the beauty of flowers and their many uses, greater sales for flowers would be created.

## Film Spot

A three-minute film commercial designed to fill in the air time between programs was successfully tried out for the first time in television recently on WBKB (Balaban & Katz), Chicago. The commercial was sponsored by John Morrell & Company for Red Heart Dog Food. The program, "Herkimer Wins the Red Heart," was produced by David W. Dole, associate radio director of the agency handling the account, Hen-

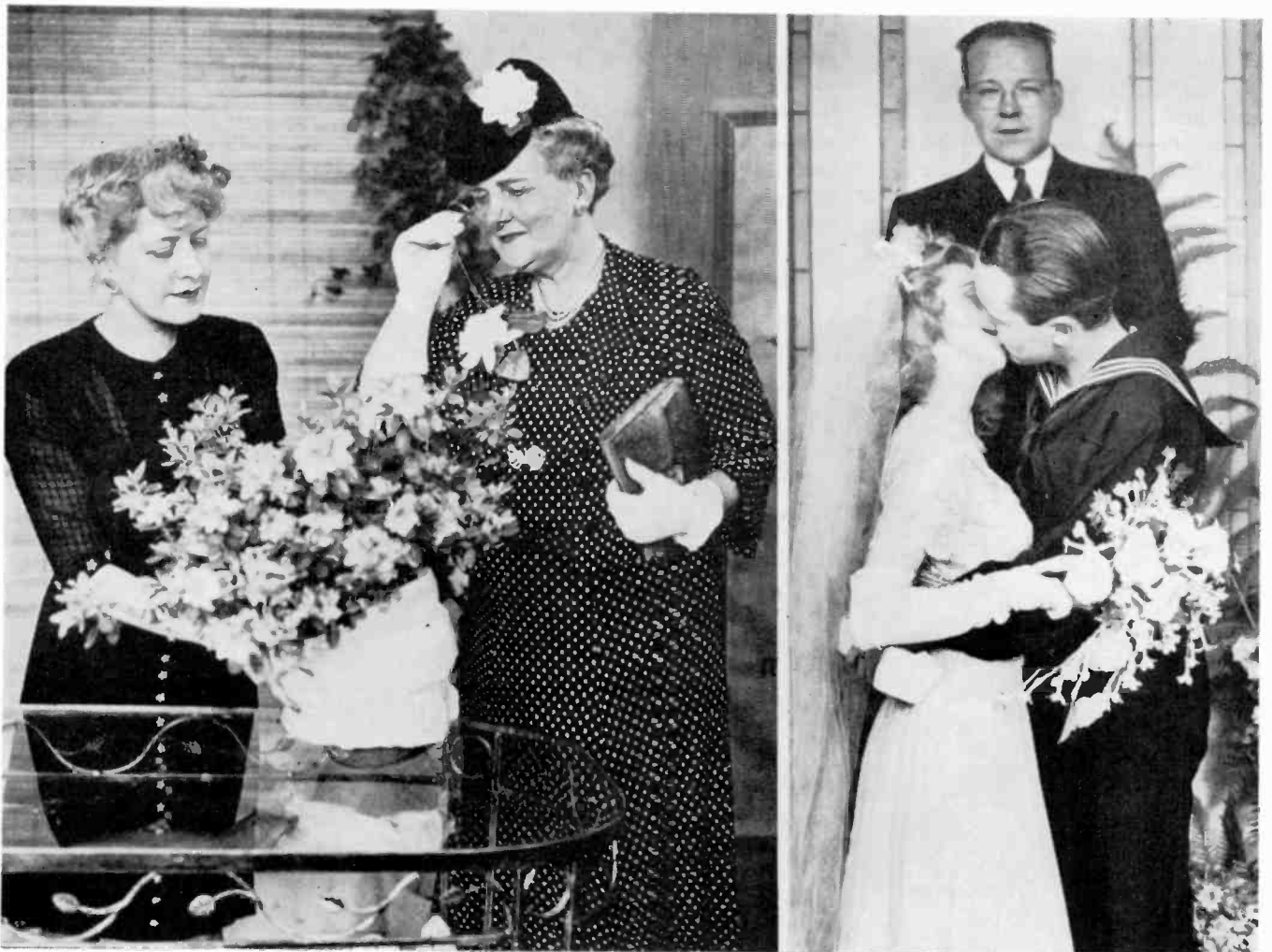
ri, Hurst & McDonald, Inc., Chicago.

The picture portion of the program, executed by Jack Tolzien of the agency art staff, consisted of 36 cartoons and headlines. These were alternately filmed onto two 35 mm. slide film strips and projected directly onto the face of the iconoscope using lap dissolves. The sound was a narration in rhyme, recorded, over a musical background.

Filed by the Chicago Film Laboratories, the approximate cost of the commercial was \$325 as an experiment and would be nearer \$450 on a commercial basis.

The commercial was so effective that plans are already underway to use the show on both WABD and WNBT in New York.

Other producers and advertisers anxious to tee-off with an economical but still effective commercial will find this technique an excellent pattern to follow.



Two scenes from "Say It With Flowers." Tommy Bright, leading Chicago florist at left shows woman unusual plant and right climax of story in which sailor is at first advised what kind of corsage will make biggest hit. He wins the girl!



Herkimer, the Red Heart dog cries when he thinks he cannot win the award. He cheers up when he learns that he will win the Red Heart medal.



Herkimer and his Red Heart award. These stills were taken from the three-minute film commercial.

# PROGRAMMING

The combining of film with live shows again comes to the fore in television programming. This combination is probably one of the most effective means of fully utilizing the advantages of the video art. Excellent work has been done on this in the past with travelogues (*Television*, February).

The latest program to successfully utilize film insertions is the DuMont production, "DuMont Focuses Its 'Ike' on Sports". The program is directed by Bob Loewi and features Tom and Bill Slater, well known figures in the sporting world. Format consists of specially edited sport films which the Slaters supply with live commentary. They also answer questions sent in by viewers. For example, if someone wrote in asking Tom Slater whom he thought was the best baseball pitcher, Slater would give his own opinions and back them up by using old films illustrating the action of such men as Carl Hubbell,

Another question might be on the best miler. Here Slater would bring in films showing many of the great races between such top runners as Cunningham, Venzke, Benthron, Woodruff and Haag.

Since the Slater Brothers do not always agree with each other, lively discussions take place. To make these sport sessions still more interesting, such outstanding sport figures as John Kiernan, Lefty Gomez, Lou Nova and others, appear as guest stars.

## Flowers

For the producer who is thinking of using flowers in his television shows, the experiences of the Society of American Florists on WBKB last month will prove helpful.

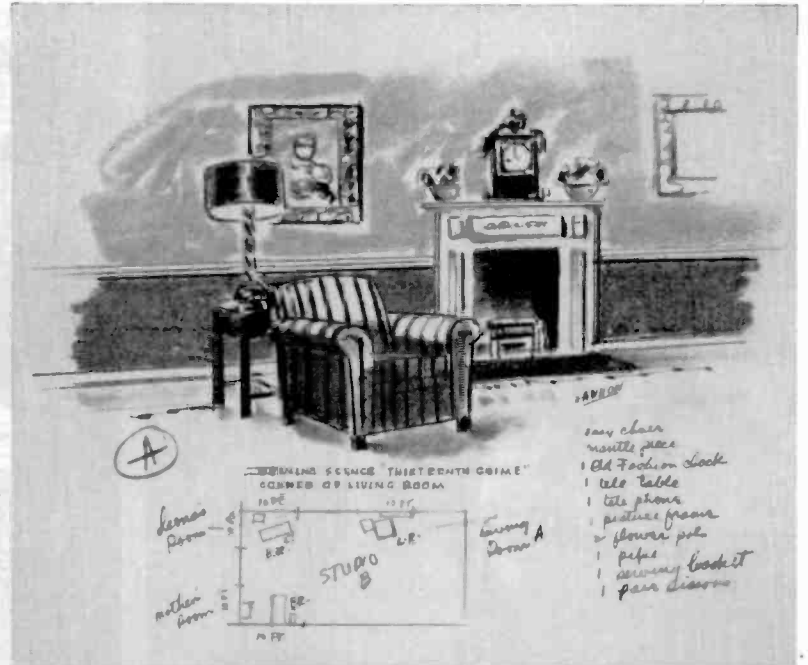
In televising flowers, it was discovered that white flowers generally look better than colored ones. However, white vases should not be used as they reflect too much light, caus-

ing a blurred effect on the screen. Tan vases and green vases and soft pink vases are better than black or dark colored vases. Glass topped tables can be used, but they too act as reflectors, particularly on white objects.

Red carnations and red roses were tried out in the various rehearsals and discarded for the final show because the television cameras did not do them justice. Various flowers in soft pinks and light yellows televised satisfactorily, particularly in the case of distinctly shaped flowers such as calla lilies, daffodils, and snapdragons. Tulips were tried in some of the rehearsals, but by the end of the half hour show their petals were drooping from the excessive heat of the lights. Greenhouse grown daffodils soon melted under the lights, while daffodils that had been grown outdoors were not obviously affected by the heat of the intense lights. Roses opened from buds to full blown blossoms, and some of them wilted so that they could not be used. Stocks were another flower that just could not take the intense heat of the video lights.



Emcees Bill and Tom Slater with guest star Lou Nova in recent DuMont show, "The Ike on Sports." Rolling title card is on right.



As an indication of the artist's importance in television production, Buchanan & Company not only have the artists working on the sets and scenery but also have them work closely with the script writer at the outset of the production. This method eliminates any guess work on the part of the writer as to what scenes will televise successfully. It enables the writer to gear his script so that many of the scenes and actions have a more dramatic effect.



Robert Shaw's Collegiate Chorale featured in NBC's Easter production on WNBT, "The Story of Easter." Actual stained-glass windows were used as a background.



High school students discuss legislation in "There Ought To Be A Law," a program patterned after congress on WCBW (CBS). Students are selected from radio-television classes in local high schools.



Children listening to story read by Carolyn Thomson (center) during recent program celebrating Children's Book Week on WRGB (GE). Show included scenes from local library and dramatization of a fairy tale.



Klaus Landsberg (center) gives last-minute instruction to actors in "Embarrassing Situations", a comedy-serial on W6XYZ. Being a Paramount subsidiary has its advantages—particularly when the Paramount Contract Players are available for programs. Pictured are Catherine Craig and Charles Quigley.



# TELEVISION IN REVIEW

## Advertising

### *WNBTV (NBC), New York.*

Botany Worsted Mills, Passaic, N. J., weather reports, through Alfred J. Silberstein, Inc., N. Y.; Bulova Watch Co., N. Y., time signals, through Biow Co., N. Y.; Firestone Tire & Rubber Co., Akron, Ohio, films, through Sweeney & James Co., Cleveland; Gillette Safety Razor Co., Boston, boxing matches, through Maxon, Inc., Detroit; Pan American Airways System, N. Y., studio programs and travel films, through J. Walter Thompson Co., N. Y.; and RCA Victor Division of RCA, N. Y., films, through J. Walter Thompson Co., N. Y.

### *WABD (DuMont), New York.*

Alexander Smith & Sons Carpet Co., Yonkers, N. Y., studio programs, through Anderson, Davis & Platte, Inc., N. Y.; Maritime Milling Co., Buffalo, N. Y., studio programs for Hunt Club Dog Feed, through Baldwin & Strachan, Inc., Buffalo; Carter Products, Inc., N. Y., studio program and films for Arrid Deodorant, through Buchanan & Co., N. Y.; Lever Bros. Co., Cambridge, Mass., studio programs and films for Lifebuoy, Spry and Rinso, through Ruthrauff & Ryan, Inc., N. Y.; Liberty Music Co., N. Y., test pattern music, direct; R. H. Macy & Co., N. Y., films and live commercials, through RKO Television Corp., N. Y.; Sanforizing Division of Cluett Peabody & Co., N. Y., studio programs, through Young & Rubicam, Inc., N. Y.

### *WBKB (B&K), Chicago.*

Admiral Radio Corp., Chicago, studio programs, direct; Marshall Field & Co., Chicago, studio programs, direct; John Morrell & Co., Ottumwa, Iowa, spot film commercials for Red Heart Dog Food, through Henry, Hurst & McDonald, Inc., Chicago; Society of American Florists, Chicago, studio program produced by Bozell and Jacobs and House of Camellia, studio programs, direct.

### *W6XAO (Don Lee), Hollywood.*

J. W. Robinson Co., Los Angeles, fashion show, through Mays & Bennett Adv. Co., Los Angeles.

### *WRGB (GE), Schenectady.*

Gimbel Bros., N. Y., studio program, direct.

## Washington

### *FCC Applications*

#### *20th Century-Fox Film Corp. New York, New York.*

Twentieth Century-Fox Film Corp., Boston, has applied for a construction permit for an experimental television station to be located at the corner of Park Drive and Brookline Avenue in Boston. This is the sixth application in the Boston area. Station will be operated on Channel 1, 50-56 mc, with visual power of 400 watts and aural, 200 watts. Transmitter and studio equipment is being leased from the General Television Corp. which has operated experimental station WIXG since 1934. As a result of its arrangement with the film company, General Television is withdrawing its application for Channel 1 in the Boston area.

Fox will use the present RCA transmitter at an approximate cost of \$19,781. E. I. Sponable will direct research for the company. Operating expenses for a year are estimated at \$35,000.

The Fox application states: "While existing equipment obtained from General Television is now designed and adjusted for operation on the frequency band 50-56 mc, it is recognized that a program of experimentation should take into account need for expanding television service into the higher frequency regions of the spectrum."

Several General Electric engineers have been hired by Fox on a part-time basis to recondition the General Television equipment and John V. L. Hogan has been engaged as engineering consultant.

The application proposes two hours a week program service. At the present time there are only about 15 receivers in the Boston area, all the property of General Television.

DuMont; E. Anthony & Sons, Inc.; Westinghouse; the Yankee Network and Filene's Television, Inc., have already filed applications with the FCC for commercial stations in Boston.

#### *William H. Block Co. 50 N. Illinois Street Indianapolis, Ind.*

The Block Co. has applied for a permit for a commercial station to be operated on Channel 1, 44-50 mc, at the site of the William Block retail department store. Amelia Block, is president of the company.

Applicant plans to use an RCA transmitter. Total cost of the studio and transmitter is estimated at \$230,000, with a monthly operating load of \$4,160. The station proposes to present programs 26 hours a week and will service 537,346 people. Application states 60% of the programs will be commercial and 40% sustaining. WHBK has been requested as call letters.

#### *United Broadcasting Co. 418 Plain Dealer Bldg. Cleveland, Ohio.*

Company has asked permits for commercial television stations in Akron and Columbus, Ohio. The Akron station is to be operated on Channel 5, 84-90 mc, and the Columbus outlet on Channel 4, 78-84 mc. The company is controlled by the Forest City Publishing Co., Cleveland newspaper publisher and licensee of standard stations WHK, WHKC and WHKK. General Electric transmitter will be used at an approximate cost of \$162,250 for each station with monthly operating costs at about \$10,000. The company will lean heavily on news programs. Applicant states that a proposed program breakdown will be submitted at a later date.

### *FCC Decisions*

The following applications for commercial stations were placed in the pending files in accordance with policy adopted Feb. 23, 1943: United Broadcasting Co., Columbus, Ohio; United Broadcasting Co., Akron,

Ohio; Scripps-Howard Radio Inc., Pittsburgh; Kansas City Star Co., Kansas City; Scripps-Howard Radio Inc., Cleveland (April 17).

Amendments to the following commercial applications were retained in the pending files: Don Lee Broadcasting System, San Francisco; E. Anthony & Sons, Inc., Boston (April 10); Travelers Broadcasting Service Corp., Hartford, Conn. (April 17).

The Crosley Corp., Cincinnati, W8XCT, granted modification of construction permit which authorized a new experimental station, for extension of completion date from 4/28/45 to 10/28/45, subject to changes in frequency assignments which may result from proceedings in Docket No. 6651. (April 10).

## Stations

### *WABD (DuMont), New York.*

Last month more than 16 advertisers and television organizations produced almost 22 hours of live and film programs on the DuMont station. Expanding its activities still further, WABD produced five of its own programs, including a special tribute to the late President and several public service programs. Televising Sunday, Tuesday and Wednesday evenings, station was on the air on an average of seven and a half hours per week. Programs included dramatic shows, audience participation programs, mystery shows, fashions, children programs, sport shows and feature films.

New advertiser last month was the Maritime Milling Co. of Buffalo which sponsored a quarter-hour dramatic program, "Old Mother Hubbard" for Hunt Club Dog Feed. The program was directed by Rett Brophy of DuMont for the Hunt Club agency, Baldwin & Strachan, Buffalo.

Continuing its policy of experimentation, Lever Brothers launched a new series of programs on its "Wednesdays at Nine" spot, replacing the John Reed King show, "Thanks for Looking", which will be continued by DuMont on a sustaining basis. The new show, "I Challenge You", was conceived by Joe

Cross, creator of "What's My Name," and G. Bennett Larson, station manager of WWDC, Washington, D. C. Program is directed by Lee Cooley, television director of Ruthrauff & Ryan, Lever Brothers' agency. The format consists of inviting the audience to send in challenges to the station in whatever their specialty may be. The station then finds opponents for selected challengers and the competition is conducted in the studio before the cameras. Typical competition may be two sergeants hawling out a rookie, the most beautiful nurse in a military hospital or two cab drivers displaying their knowledge of Shakespeare.

Outstanding and unusual WABD programs last month included Ray Nelson's "Scheherezade" ballet for Charles M. Storm agency and "The Cathedral," an Easter production. The Easter show was the story of a young soldier in a bombed cathedral in England. Play was written by George Lowther of DuMont.

### *WBKB (Balaban & Katz), Chicago*

Active interest in television as a sales promotion medium is hitting a new peak in Chicago. Admiral Radio of Chicago launched a new weekly series of experimental programs. Using talent from Chicago's high schools selected by city-wide auditions, Admiral presents the programs entitled "Young Chicago" in cooperation with the Radio Council of the Chicago Board of Education. Idea is to discover future television stars. Beulah Zachary, of the WBKB staff, directs the show.

Television as an advertising medium was boosted in a full-page ad placed by Marshall Field & Co. in Chicago newspapers recently. The ad tied-in with the department store's commercial television shows presented twice-monthly on WBKB.

"Say It With Flowers," a half-hour skit was sponsored by the American Floral Society during a convention in Chicago last month. A lavish array of rare flowers were displayed as part of the show.

The Commonwealth Edison Co. of Chicago began a television quiz show, "Telequizcalls". Video set owners, selected at random by a name-from-a-hat process, are called

during the program and asked to answer questions based on visual stunts going on during the show. Prizes are awarded to those answering questions correctly.

WBKB will continue its regular four-a-week schedule of telecasting during the summer months. In addition to Tuesday, Thursday and Friday evening shows, a two-hour program is telecast every Wednesday afternoon.

### *WCBW (CBS), New York.*

A dramatization based on the Resistance Movement in Paris was recently presented on WCBW. The script was prepared from material brought to this country by Pierre Schaeffer and Pierre Garrigues, representatives of the French Broadcasting Service, a semi-independent branch of the Ministry of Information. The program, "Soldiers Without Uniforms," was written and directed by Ben Feiner, general program assistant at WCBW. Narrations during the program were handled by Emlen Etting, OWI correspondent.

Also presented during the month was "April in New York," a panorama of entertainment and points of interest available to servicemen and women. Featured in the regular monthly presentation were animals from the Bronx Park Zoo, circus scenes, dance numbers from the stage production, "On The Town," and baseball scenes, with writer John Graham as guest.

"Brides in Wartime," fifth in a series of "Women in Wartime" programs was produced in collaboration with *Mademoiselle* magazine. Dramatization included a Polish underground wedding, suggested do's and don'ts for brides and an etiquette quiz.

Also included in last month's programming was "There Ought To Be A Law," presented by the station in cooperation with the Board of Education of New York. Students from New York City high schools are featured in the program which has a simulated Congress setting with the students proposing, discussing and voting on legislation.

Allan Jackson, CBS network newscaster, has taken over the WCBW

news and analysis telecasts formerly conducted by Everett Holles who is now stationed in Chicago.

In order to create greater flexibility in operation, CBS on May 1 inaugurated a three-day schedule—Tuesday, Thursday and Friday evenings. The total weekly air time will still be four hours. "With the new schedule," according to Worthington Miner, manager of the CBS television department, "it is hoped to increase the variety of productions possible within the confines of a single studio, as well as to accommodate a greater portion of the increasing requests to view television during air time."

Last month WCBW was on the air some 20 hours. About 15 hours were live shows and five hours were devoted to films.

#### *WNBT (NBC), New York.*

Outstanding program of the month for the NBC station was "The Story of Easter," an Easter television pageant featuring Robert Shaw's Collegiate Chorale performing against a backdrop of famous religious paintings and etchings. Program was produced by Dr. Herbert Graf, NBC director of Operatic Productions and stage director of the Metropolitan Opera Company.

Another outstanding program was "Abe Lincoln in Illinois." The show was part of a public service program for delegates to the International Education Assembly.

To keep New York viewers immediately abreast of current events on V-E Day, NBC has planned direct pickups of the crowds at Times Square. NBC's portable field equipment will be used. So viewers may see up-to-the-minute flashes of the latest news, news tickers operating in the studio will be televised. The network's top news correspondents and commentators will be televised at work.

A series of weekly shows designed to appeal to children were inaugurated last month. Featured in the programs are live talent productions, motion pictures and puppet shows. NBC is periodically checking the audience to ascertain the appeal of the programs. Changes in program structures will be made to conform to the desires of the chil-

dren viewing the series.

A comedy-drama, based on a story from *Charm* magazine was presented recently. Titled "Portrait in Black," program was written and directed by Ernest Colling, NBC video producer.

WNBT again led all other video stations in televising hours. They were on the air for 77 hours, including 34 hours of test patterns. About 35 hours were live programs and some eight hours were films. Wrestling and boxing matches made up some 25 hours.

#### *WPTZ (Philco), Philadelphia.*

All the efforts of the personnel of the Philco station last month were concentrated on the first multiple-relay video network between Philadelphia and Washington, D. C.

Station continues to telecast two-hour film programs three nights weekly.

#### *WRGB (GE), Schenectady.*

"Ladies Be Seated," the American Broadcasting Company show presented each Sunday evening with Johnny Olsen as emcee and produced by George Wiest of ABC, is still the outstanding live program on the station. "Tele News," featured every Friday night also continues as an

audience favorite.

A number of dramatic programs were presented by dramatic clubs. Other programs included AAU wrestling matches produced in the studio and a series of light opera presentations performed by the WRGB Light Opera Co. Variety programs featured were "Junior Jive", "An Evening in the Bowery", "Hands Across the Rio" and "Backstage at Gimbel's", sponsored by Gimbel Brothers.

The station was on the air 48 hours—13 hours of films, 15 hours of live shows and 14 hours relay from WNBT, New York.

#### *W6XAO (Don Lee), Hollywood.*

"Keyed to California," a live presentation of 'round-the-clock fashions suitable for California summer wear was presented on the Thomas S. Lee video station by the J. W. Robinson Co. department store. The program was under the direction of Rod Mays, of Mays and Bennett Adv. Co. and Jack Stewart, program director of W6XAO. Models stepped from the pages of a giant picture book, turning the pages as they stepped out. Each page showed a sketch appropriate as background for the particular item modeled.

Also featured on the station last month was "An Evening of Song and Poetry," with John Burton, author



NBC directors conference. Second from left and to right are: Ronald Oxford; Edward Sobel (seated); Dr. Herbert Graf and Ernest Colling (seated).

and lecturer, who read excerpts from his own book of verse. Concert and light opera selections were presented by Paula Purnell to tie in with the poetry reading.

Station continues to broadcast a two hour program once every two weeks.

### *W6XYZ (Television Productions), Hollywood.*

Arrangements made by Klaus Landsberg, station manager, and A. J. Richards of Paramount News, provides station with latest world wide news pictures in form of slides made from Paramount News film clips. These slides were added to the illustrated news commentaries on the station's coverage of the San Francisco United Nations Conference.

Outstanding program last month was the "Revue in Uniform" series. Show featured G.I. entertainment and experiences of war heroes who participated in the program. Other programs included "Hits and Bits," a variety show with Richard Lane as emcee; "Scanning the Glove," the latest war news with Jack Latham; "Tele-Travel" narrated by George Brandt; and a series of studio amateur boxing and wrestling matches.

Station was on the air twenty hours last month. All shows were live with slides being used to support the programs. There were no commercials.

### *American Broadcasting Company, New York*

Presenting a television program built expressly for the entertainment of servicemen in hospitals of the New York metropolitan area equipped with receiving sets, the network last month began a video version of its radio feature, "Letter To Your Serviceman". Under the ABC's cooperative sponsorship plan for television, the John David Stores sponsor the program to the extent of the production costs only. There is a brief mention of the sponsor's name and no commercial announcements. The half-hour program features the reading of letters to men in the service by Bert Bacharach. Photographs of professional models

participating in the show, taken during the actual telecasting, are sent to servicemen requesting the pictures. Show is produced by Harvey Marlowe of ABC.

The network recently completed arrangements for the sponsorship of time breaks during V-E day video broadcasts by the Waltham Watch Company. Paul Mowrey, manager of ABC's television division, pointed out that the watch company will be charged for production costs only, which involve principally costs for talent and studio properties. There will be no time charge, as the television programs on V-E day will be aired through the facilities of WABD. Agency is N. W. Ayer & Son, New York.

Network continues its excellent "Ladies Be Seated" program each week on WRGB (GE). The show, also adapted from its radio program, is produced by George Wiest.

### *WNEW, New York.*

Gaining invaluable knowledge of video programming by trial and error, WNEW continues to experiment with half-hour programs twice monthly, on WABD. Station recently presented a televersion of its radio program, "Meet The Russians," with the dramatization of "They Were Four." The program was produced by Jack Grogan, television director of WNEW and directed by George Foster. Station also produced "Soldiers with Coupons," a dramatization of the OPA's anti-inflation fight, with Daniel P. Wooley, Regional OPA Administrator, as guest.

### *WOR New York.*

The MBS station, through consistent programming each week is gaining vast experience in producing good video shows on WABD. WOR programs last month included dramatic productions by the WOR Brownstone Theater Players; "Seeing Is Believing," a burlesque of radio programs and announcers; "School Daze"; and "This Wonderful World," a program produced in cooperation with the New York Museum of Natural History. Bob Emory of WOR produces and directs all productions.

## Organizations

### *Television Broadcasters Assn.*

Ralph B. Austrian, executive vice-president of RKO Television Corp. and chairman of the program committee of TBA has announced the appointment of the following to serve on his committee: Dan D. Halpin, RCA Victor; Martin B. Jones, Jr., Buchanan & Co.; Norman Livingston, WOR; G. Emerson Markham, GE; Sam Cuff, DuMont; Earl I. Sponsable, 20th Century-Fox; George Shupert, Television Productions, Inc.; Will Baltin, TBA; John T. Williams, NBC; John Gilligan, Philco and Prof. Edward Cole, Yale University.

The Yale University Department of Drama is the first educational institution to be admitted to TBA as an educational member.

### *American Television Society*

George Shupert of Television Productions, Inc., Paramount Pictures has been nominated for the presidency of ATS. Other nominations included David H. Halpern, vice-president and general manager of Henry Souvaine, Inc., vice-president; Don McClure, video director of N. W. Ayer & Son, treasurer and Alice Pentlarge, radio producer, secretary. Elections will be held this month with the new officers assuming their duties June 1.

### *Affiliated Committee for Television*

To benefit the 20,000 film and radio artists and technicians, ACT began a new course in television. Sgt. Carl Beier, Army technician who has produced some 250 video shows, gave the first lecture. More than 14 Hollywood guilds and unions are affiliated with ACT, including the Screen Actors Guild.

### *Television Producers Assn.*

A standard form television script along with a standard cue sheet, using a three column method, was recently adopted by members of TPA. This is one step in TPA's program to aid in the standardization of video production methods.

## Patents

### Film Projection

T. T. Goldsmith Jr., Cedar Grove, N. J., received Patent No. 2,373,114 April 10 on a method for producing television programs in large size on motion picture screens. (Application for patent June 21, 1941; 11 claims granted; assigned to Allen B. Du Mont Laboratories, Inc., Passaic, N. J.)

Under the patented system, incoming electrical signals are converted to the corresponding light and shades of a picture as negative images on a cathode ray tube. A motion picture camera records the pictures directly from the cathode ray tube onto positive stock film. This film is developed rapidly (only about one minute is required for development), and can be projected promptly in standard motion picture theatre projection equipment.

This large screen reproduction of television programs would avoid the necessity for reproduction of the television picture in a tube which must in itself have sufficiently intense brilliance to allow direct projection. The cathode ray tube is bright enough to provide for recording on an inexpensive grade of motion picture film, although the brilliance is far less than that required for direct projection, say on a screen 30 feet in size. Consequently, the life of the cathode ray tube is much longer than in the case of direct projection and the equipment is less costly.

By recording television programs on film it is possible to use standard projection equipment with its high brilliance provided by highly developed arc lights. By use of the intermediate film, programs may be edited before showing in a theatre. Repeat programs would be available and programs could be scheduled at will.

The apparatus uses a conventional receiving circuit, but at a point along the amplifier circuit the composite synchronizing and video signals are

fed to the circuit that is necessary to invert the polarity of the picture.

### Deflection

Otto H. Schade, West Caldwell, N. J., received No. 2,370,426 on February 27 on a circuit arrangement for deflecting the cathode ray beam in a television image pick-up or scanning tube such as the "Iconoscope" type. (Application for patent March 29, 1943; 17 claims; assigned to Radio Corporation of America).

### Fluorescent Lighting

Also awarded to Mr. Schade on the same date was No. 2,370,425 on a system of using fluorescent lights in a television transmitting studio instead of the more conventional incandescent arc lamps. (Application for patent July 27, 1942; 14 claims; assigned to RCA).

### Echo Reduction

Frank J. Bingley, Chestnut Hill, Pa., on April 3 Received No. 2,372,876 on a means of reducing or eliminating the undesirable echo effects resulting from the arrival during the picture line periods of echoes of the horizontal, or line synchronizing signals. (Application March 19, 1942; 28 claims; assigned to Philco Radio & Television Corporation, Philadelphia, Pa.)

These echoes, the subject of several recent patents, may correspond to a signal path difference of a mile or several miles, and may amount to as much as 15 or 20 microseconds if the path difference is only three or four miles. The echoes may be faint, due to greater path length, the fact that the echo-signal normally suffers considerable weakening in reflection, or to the fact that the indirect path is usually closer to the earth than the direct path.

On the other hand, reflected blanking and synchronizing signals of considerable strength sometimes appear in the picture as a result of a long-delayed echoes. The objectionable

signals are strongest in alternate carrier television systems, and this invention is aimed particularly at the elimination of echo effects in this type of system.

Elimination is provided through a phase-changing means at the transmitter for periodically changing the polarity of the echoes seen at the receiver, so that they are of opposite character in successive frames. Phase reversal is effected gradually, by selecting video and synchronizing carrier frequencies which bear a numerical relation to each other, so that the phase of the beat frequency (that is, the echo) resulting from the mixing of the video and a delayed synchronizing signal carrier is substantially opposite (differs 180 degrees) in successive frames. These phase changes, or reversals, are effected at the transmitting station and require no additional equipment at the point of reception.

This device works in practice on the familiar optical effect of "persistence of vision." The rapid alternation of echoes of opposite characteristics on the screen of the picture tube creates an effect equal to that which would obtain if no echoes were reproduced at all. In a conventional television system based on 30 complete frames per second, there will be 15 complete "echo alternations" per second; apparently the rapid substitution of light echoes for dark echoes and vice versa causes the eye to ignore the individual echo effects and average the total echo effects.

### Projection

Adolph Henry Rosenthal, New York City, was granted Reissue Patent No. 22,628 on April 10 on a television receiving screen. (Original application March 11, 1939, patent No. 2,306,407 awarded Dec. 29, 1942; in Great Britain March 18, 1938; 7 claims; assigned to Scophony Corporation of America, New York City).

### From Italy—Magnetic Deflection

Patent No. 2,369,631 was granted to Giuseppe Zanarini, Turin, Italy, and vested with the Alien Property Custodian. This patent covers a push-pull circuit for magnetic deflection of cathode rays.

The invention was patented in Italy, May 30, 1940.

# EDITORIAL

## OUR SECOND YEAR

A year ago when the first copy of TELEVISION magazine was published, the industry was in its final planning stage. It still is — but with peace-time production not too far off, the television industry should be underway. It is in this period that there must be full cooperation among the many interests of the industry.

Broadcasters, advertisers, engineers, film companies, programmers, educators, manufacturers and the Government must all keep pace with every development in the field.

In the coming year TELEVISION magazine will do its part by continuing to present factual articles on new equipment and its uses, programming techniques, station design and operation and other informative subjects.

TELEVISION magazine will continue to keep its readers abreast of the industry by reporting accurately all advertising activity, government actions and new industry developments and by continuous surveys of the plans of all important interests in the television field.

## BROADCASTERS

In commenting on the start of a regular television service on two video stations, Chester J. La Roche, Vice Chairman of the American Broadcasting Company said:

"We are fortunate in that through arrangements with existing television broadcasters, our technicians and programming people can gain invaluable experience with different types of equipment. When we construct our own studios and transmitters and work with various equipment, we will be in a position to select from any and all types of equipment and from various manufacturers."

It is unfortunate that the majority of broadcasters throughout the country do not share Mr. La Roche's sound approach to television. With the exception of a few live wire stations, WOR and WNEW who are actively experimenting in programming with the facilities of WABD, the broadcaster has been content to sit aside rather than to actively prepare himself for an industry in which he is so closely allied. There are still many leading cities like Atlanta, Georgia and Portland, Oregon without one single television application. If the broadcaster continues this inactive policy, he will surely be left by the wayside. There will be many new interests in the field. Newspapers, department stores, magazines, film companies, and exhibitors are all coming into television and many of them will be better qualified to operate a television station than most broadcasters.

Showmanship and merchandising will be the key factors in successful video station operation. This cannot be learned over night. The only chance the average

broadcaster has to insure a place for himself in television is to actively get in the field now. Trips can be made to operating stations where arrangements can be made for the use of their facilities. Studies can now be carried on in film production and other entertainment media.

Intelligent decisions as to what equipment and what kind will be necessary cannot be reached by reading a company brochure but only by actively studying and, wherever possible, using video equipment.

## EDUCATORS

For many years now we have been hearing inspiring speeches by educational groups. At every radio and educational confab the importance of education has been stressed. But with few exceptions, there has been nothing done to date but talk as far as education in television.

The Chicago Board of Education is one of the first to prepare for the time when television will become a medium of effective class-room instruction. They recently inaugurated a three-way experimental arrangement with the Balaban & Katz station, WBKB, and the Admiral Corp., Chicago radio and television manufacturer. The weekly half-hour program consists of variety entertainment presented by talented students and "public relations" programs by various departments of the Chicago school system. These programs will not only discover new talent for television, but more important, will provide experience for the department heads of the Chicago schools for future programming. Other educators should follow their example and actively work with the television broadcaster *now*.

Progressive school systems with their extensive use of 16 mm film are also on the right track. They have accomplished the first stage, but there is much to be done.

This is only one stage in video education. The unlimited field is the home. And there could be no better time than now for educators to experiment with home education. Anything and everything should be tried. Programming costs are low and the size of the audience too small to seriously protest unsuccessful experiments.

## LARGE SCREEN TELEVISION

There are undoubtedly many who still think television is a bit around the corner. They still think of television in terms of 1910 movies. However, once they have seen the post-war models with the new higher definition large screen picture they will immediately realize that television is here now. A thousand words and a thousand pamphlets won't mean a thing compared to the actual viewing of the new post-war models currently being shown.

**Keep up with television  
by reading Television**



The first time blood was actually given to the Red Cross by a donor on a television program! Spike Howard, World's Champion Blood Donor, at Philco Television Station WPTZ in an early Philco public service television program.



## **Audience Limited . . . Appeal Universal!**

LOOKING AHEAD toward the day when television will have a nationwide audience, Philco long ago experimented with types of programs designed to serve the public interest.

This experimental work, interrupted to a considerable degree by wartime pressure, has been as important in its way as the technical research carried on by Philco engineers.

The commercial success of television will be based on a combination of a good picture and a good program. To assure a

great public acceptance, the picture must be something people really *want* to see!

Philco Television Station WPTZ had made noteworthy progress in that direction before the war . . . a sound foundation on which to build for the future.

# PHILCO

*Pioneers in Television Research*



The *Quiz Kids* say:

**"DUMONT TELEVISION IS COSMIC LEGERDEMAIN"**

You will agree that these diminutive stars,\* while rarely at loss for correct answers, are seldom available when prospective operators of postwar Television stations have questions to ask. Fortunately, DuMont Television "know how" can be tapped as needed... cost and engineering data on every phase of station design, construction and operation... the accumulated knowledge gained through more than 4 years' station management and production of programs.

The low operating cost, extreme flexibility and rugged dependability of DuMont Television

transmitting equipment are being convincingly demonstrated week-in and week-out in 3 DuMont-equipped stations. New postwar designs embody all wartime advances. You can arrange *now* for early peacetime delivery of station equipment and training of personnel through the DuMont Equipment Reservation Plan. Visit DuMont's Station WABD, New York. Call, write or telegraph for appointment... Station Equipment Sales Division, Allen B. DuMont Laboratories, Inc., 515 Madison Avenue, New York 22, N. Y.

\*Appearing Sunday evenings on the Blue Network.

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