

# BROADCAST

NEWS



## "COLOR HOUSE"

CONCEIVED, DESIGNED AND  
BUILT FOR COLOR TELEVISION



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# WGN

## COLOR HOUSE



## NATION'S TOP INDEPENDENT PLANS 1700 HOURS OF LOCAL COLOR IN 1962

In January 1961, WGN moved to its new Mid-America Broadcast Center, and began operations in what will eventually become an all-color television center.

The new 2-story facility is hailed as one of the largest and finest in the U.S.A. It contains over 100,000 square feet of floor space, situated on a 13-acre site, some 15 minutes from Chicago's downtown area.

Doors to the new radio-TV building were formally opened on June 27 by J. Howard Wood, President of the Tribune Company and WGN, Inc.,—also publisher of the world-famous Chicago Tribune.

(WGN radio began on June 1, 1924, when the late Col. Robert R. McCormick acquired station WDAP and changed the

call letters to WGN, standing for the Tribune's slogan "World's Greatest Newspaper".)

WGN'S new broadcasting center was conceived and is built for color television. Studios are designed for color operation, containing facilities for producing both live commercials and programs in color. In addition, a complete mobile unit is provided for remote colorcasts. At present, WGN is one of America's leading color stations, programming more than 1,000 hours of color shows per year, since 1959.

### Color Programming

The major part of the 1400 hours in color for 1961 was done live from either WGN studios or remotes.

WGN-TV televised 122 baseball games in color during 1961. This was the second year that viewers saw major league games in tint. There were 43 daytime home games of the Chicago White Sox and 77 of the Chicago Cubs, together with 2 city series games. These were colorcast directly from Wrigley Field and Comiskey Park, using the Color TV mobile unit with four color cameras and color Microwave Link.

Other color programs, live studio shows, daily Monday thru Friday, include:

Treetop House .....	9-9:30 am
Bozo Circus .....	12-1:00 pm
Bugs Bunny .....	3:30-4:00 pm
Gärfield Goose .....	5-5:30 pm
Dick Tracy .....	6:30-7:00 pm





FIG. 1. WGN's new Mid-America Broadcast Center (left).

FIG. 2. (lower left) At dedication of WGN Broadcast Center were Ward L. Quaal, executive vice-president and general manager of WGN, Inc. (right) and J. Howard Wood, publisher of the Chicago Tribune and president of WGN, Inc. Also, T. Clifford Noonan and Marvin G. Probst, vice-president and president respectively of Graham, Anderson, Probst & White, who designed the broadcast center.

FIG. 3. (right) "Treetop House" is a daily program for pre-school children—with natural color sets of living plants and live animals.

### Children's Color Programs Pay Off

In TREETOP HOUSE, the pre-school children are entertained by Mary Jane Clark. There is a daily round of games, songs, and stories. Also an educational feature designed to develop an awareness of the world in youngsters. This is done by the planting of flowers and vegetables, the care and feeding of fish and animals. Color lends realism to this effort to stimulate the imagination of children.

The BOZO CIRCUS is complete with ringmaster and a band as well as Bozo the Clown. The atmosphere is that of the big top—colorful and spectacular. There are live animal acts and guest performers alternating with games and prizes. Chicago children are released from school, a class at a time, not only to enjoy this spectacle but also to report on the manner in which a television program is put on!

BUGS BUNNY is a color cartoon show with live wraparound. Dick Coughlan uses hand puppets to introduce the various cartoons. Dick also inserts the color commercials quite cleverly—carrying on conversations with his mythical friends.

The GARFIELD GOOSE with Frazier Thomas is a live puppet show in color. Garfield is a gander who has delusions of grandeur, believing that he is king of the United States! It's another amusing show for children.

The DICK TRACY color show includes new films of this famous character with live wraparound by Ray Rayner. He is Sergeant Pittibone, who carries on conversations with Dick Tracy (never seen).

These live color shows are filled up with sponsors. Several of these shows lead their time period, against network competition, and have a waiting list. This would prove that it pays to be what has been said of WGN, "The station is wild about color."







FIG. 4. "Bozo Circus" is a daily spectacular color production for the young of all ages. Children are released from school to attend, with teachers and parents.

FIG. 5. The Chicago Symphony Orchestra is heard each Sunday evening 9 to 10 p.m. on "Great Music from Chicago." In 1960 this program, televised live and in living color, won for WGN the coveted Peabody Award.



#### Night-Time Color . . . Clicks

Live programs in prime time include: MR. MAGOO on Wednesday, 7 to 7:30, and EXCLUSIVELY OUTDOORS on Thursday, 8 to 8:30.

Live color wraparound for the Magoo cartoon is provided by Mr. Ogelsby, who runs a delicatessen store and personally delivers orders to Mr. Magoo. Once there, Ogelsby is enticed by Magoo to view the color cartoons. Ratings show the adults go for this in a big way.

EXCLUSIVELY OUTDOORS is presented by Jim Thomas and designed for the sportsman and sportswoman. On-location color films are used to demonstrate hunting and fishing techniques all over the world. Color helps sell sporting goods to these devotees of the sports.

On Thursdays and Fridays at 10:15 color feature films are shown under title: WGN PRESENTS. This is part of the recent film package of post-1950 features acquired by the station. These color features are premiere showings for Chicago.

Another color film series "BEST OF THE POST" is presented, Thursdays at 8 p.m.

Altogether color programming for 1961 tops 1400 hours. Ratings are excellent. There are no red ink entries, no sustaining required. Color has more than paid its way—from the beginning.





FIG. 6. New "Dick Tracy" color cartoon show has a color wrap-around with realistic and colorful setting, featuring Sergeant Pettibone.

### Color Adds New Dimension

"WGN-TV has played a major role in color broadcasting", states Ward L. Quaal, Executive Vice-President and General Manager, WGN, Inc., "making its entry back in November, 1957, with a modest 30 hours.

"Since then, we telecast more than 400 hours of color in 1958, with a total of 1070 hours in 1959 and 1200 in 1960. This year, we expect to do 1400 of our programs in color and, on a projected basis, present 1700 hours of color in 1962.

"In the case of television, color has added a fourth dimension to the trio of sight, sound, and motion—a combination which no other medium can match.

"Both the networks and individual stations across the country have, with few exceptions, reached a "plateau" in sales development. There is only one ingredient to change this picture and that is the introduction, at every television station and on all three networks, of color on a full-scale basis.

"In my opinion, this will create a greater tune-in, will stimulate more interest in the medium and above all, will pave the way for a dramatic influx of new advertisers. The list of those who would use television for their advertising, if enough of it were in color, is limitless."

FIG. 7. During 1961 WGN colorcast 122 Chicago Cubs and White Sox daytime home baseball games directly from Comiskey Park and Wrigley Field.

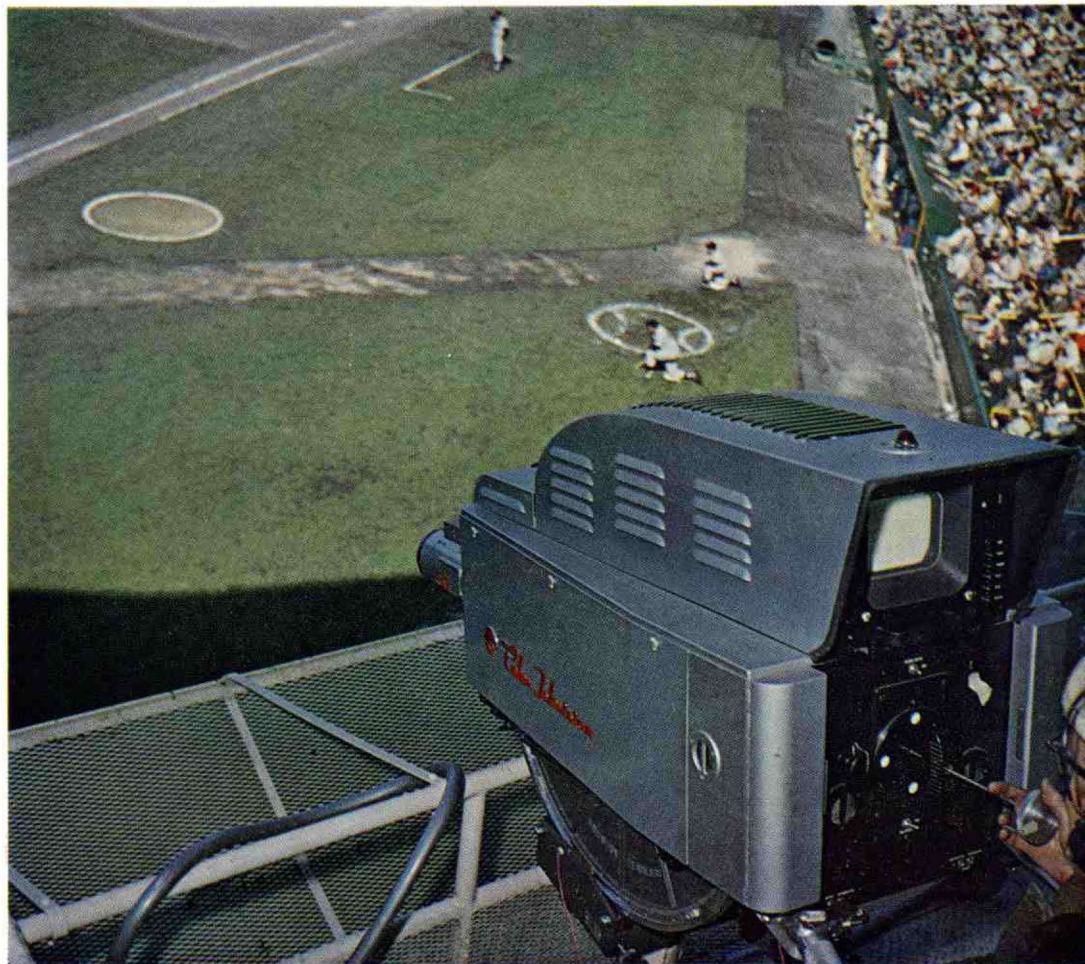






FIG. 8. Carl J. Meyers, vice-president and a director of WGN, Inc., whose design philosophy is reflected in the new building as well as the equipment system.

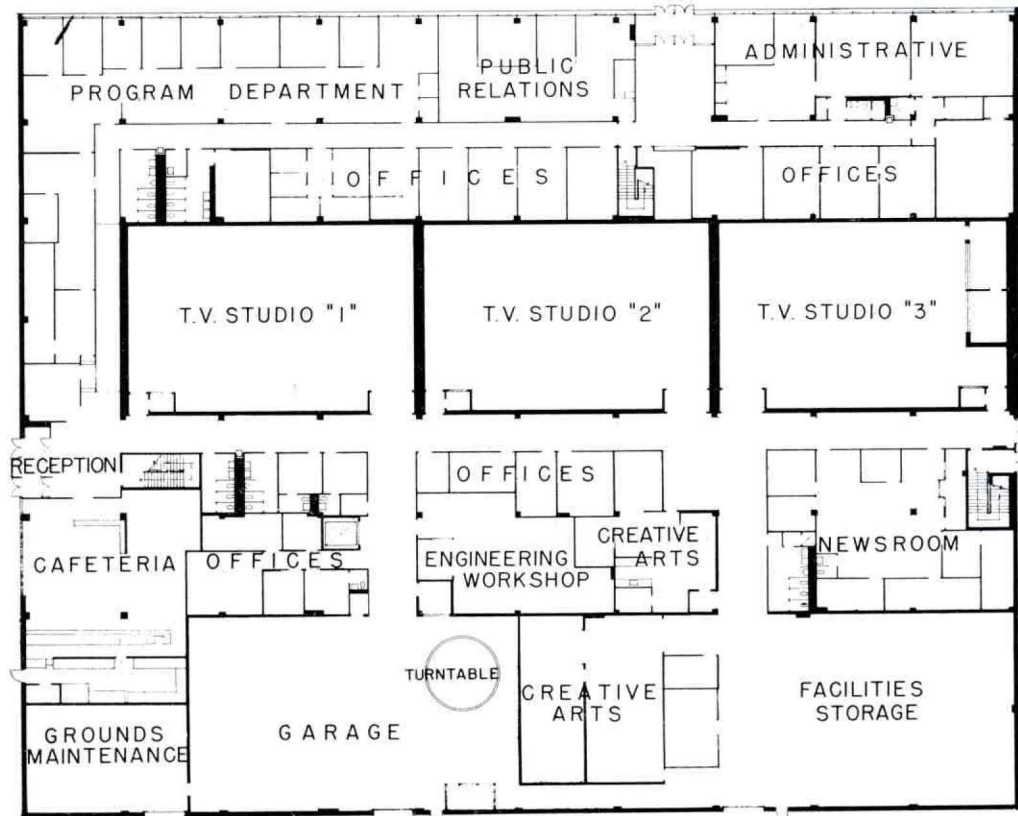


FIG. 10. First floor of WGN's new radio and television studio and office building.

### Color House

The new building is designed to comply with the operational requirements outlined by the station engineering staff, headed by Manager of Engineering, Carl J. Meyers, Vice-President and a director of WGN, Inc. In the new structure are located all radio and TV studios, together with 50 individual offices for administrative, engineering,

and sales functions. Facilities include film and news rooms, garage for mobile units, a video tape area, and a revolving stage to produce commercials for automobiles or agriculture equipment.

Outside there are beautiful landscaped areas together with parking space for some 300 cars. Inside is a 60-seat cafeteria and private dining rooms. Included are the nec-

essary machine and carpentry shops, dressing rooms, and talent areas.

The new building was designed by the architectural firm of Graham, Anderson, Probst & White, Inc. General contractor was the Gerhardt F. Meyne Company.

### Special Structural Features

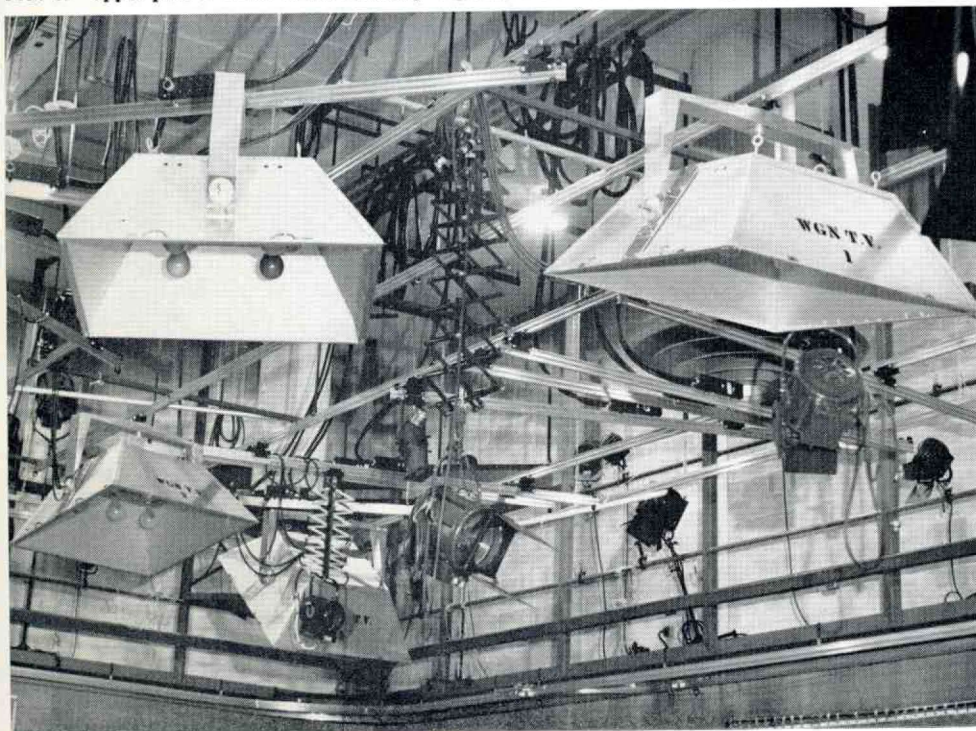
The reinforced concrete building exhibits a simple exterior of brick, aluminum and glass. Striking, however, are the structural features which isolate the three main TV studios from the building proper. Each studio, 72 by 47 ft., is, in effect, a building within a building. Each rests on its own caisson foundation—separate from that which supports the balance of the structure.

Each studio has its own separate walls, ceiling and roof framing. A control room, 15 ft. above studio floor level, gives virtually 100 per cent visual coverage of the studio. A steel grating catwalk follows the perimeter walls of each studio at the control room level. It can be reached from both the control room and the studio floor. It's useful for staging special lighting effects and for control room personnel.

### Acoustical Features

The building incorporates, for acoustical reasons, floating partitions, a door system with sound locks, and sound absorbing materials on studio walls and ceilings. On the walls, this material runs only half way to the 30 ft. ceiling, giving a pleasant "live" but tempered, resonant quality.

FIG. 9. Upper part of WGN studio showing "lighting tubs" and "the rail" system of mounting fixtures.





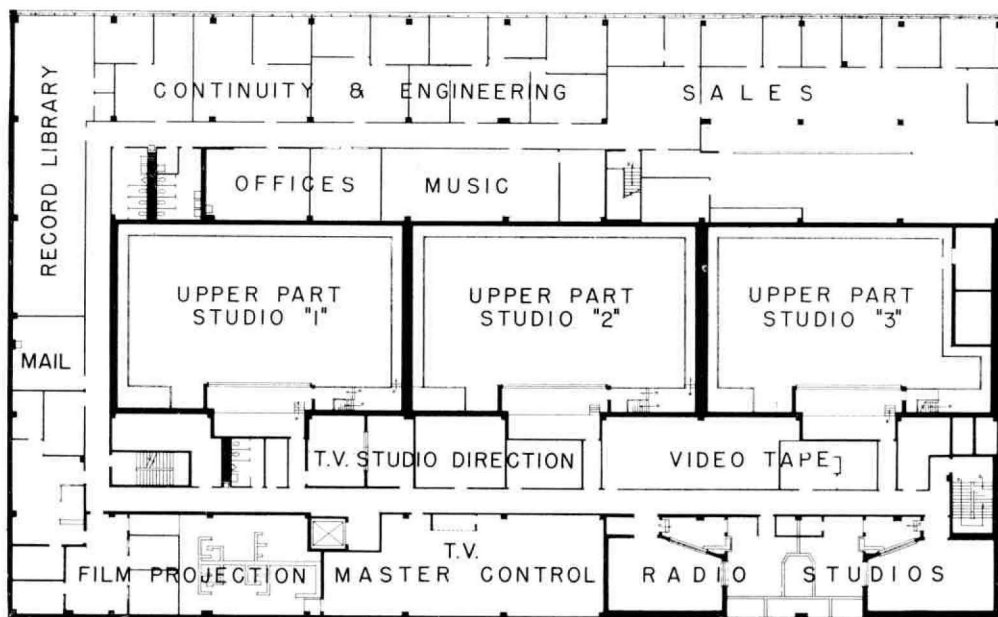


FIG. 11. Second floor of new building. All three TV studios are same size.

Special precautions were also taken with both mechanical and electrical equipment. In the mechanical area, special mountings are used for all pumps and motors. These mountings use spring isolators and floating concrete pads. Even the boiler is on a floating pad.

Flexible connections were used extensively and all piping and ductwork are hung to avoid direct contact with studio enclosures. A low-velocity air-conditioning system is employed, with sound attenuators in all ducts supplying air to the studios.

To eliminate noise from electrical service, lighting ballasts are located remote from the studio. Flexible connections are used between the building and walls of the studio. Transformer noises are isolated by use of sound dampeners.

### Studio Philosophy

Design of the TV studios reflects advanced thinking in this area as conceived by engineering Vice-President Meyers. All three main studios are similar in size and construction, have identical equipment, can handle color as well as monochrome. Facilities are such that each studio can accommodate anything from a 60-second commercial to a full-scale production, with room for audience of 150 people, orchestra and talent, crews with their gear, and large vehicles or other apparatus.

### Studio Lighting

An unusual method of lighting has been designed by the WGN engineering staff. Instead of scoops, the base lighting is supplied by brute-force "lighting tubs". Designed and built to WGN specs, these are square boxes, 4 by 4 feet, containing sockets for six 1000 watt bulbs. Seven of these tubs are used in each studio.

In addition, there is the normal complement of spots and floods, both floor and pantagraph mounted, for fill-in, back lighting, and other effects. A total of 120 kw is available for lighting in each studio, and 72 kw of this is on dimmers. Incidentally, the tubs can be dimmed up and down. Thus, each studio has lighting adequate for monochrome and color programs.

To make the lighting arrangement as simple and flexible as possible, all the lights are mounted on fixtures which run on overhead rails. A special fixture was designed by WGN engineers for the "lighting tub", so that they could be propelled into position and tilted at any angle—without the necessity of lowering them or using a ladder. In fact, all the lights can be manipulated from the floor by one man, using a pole.

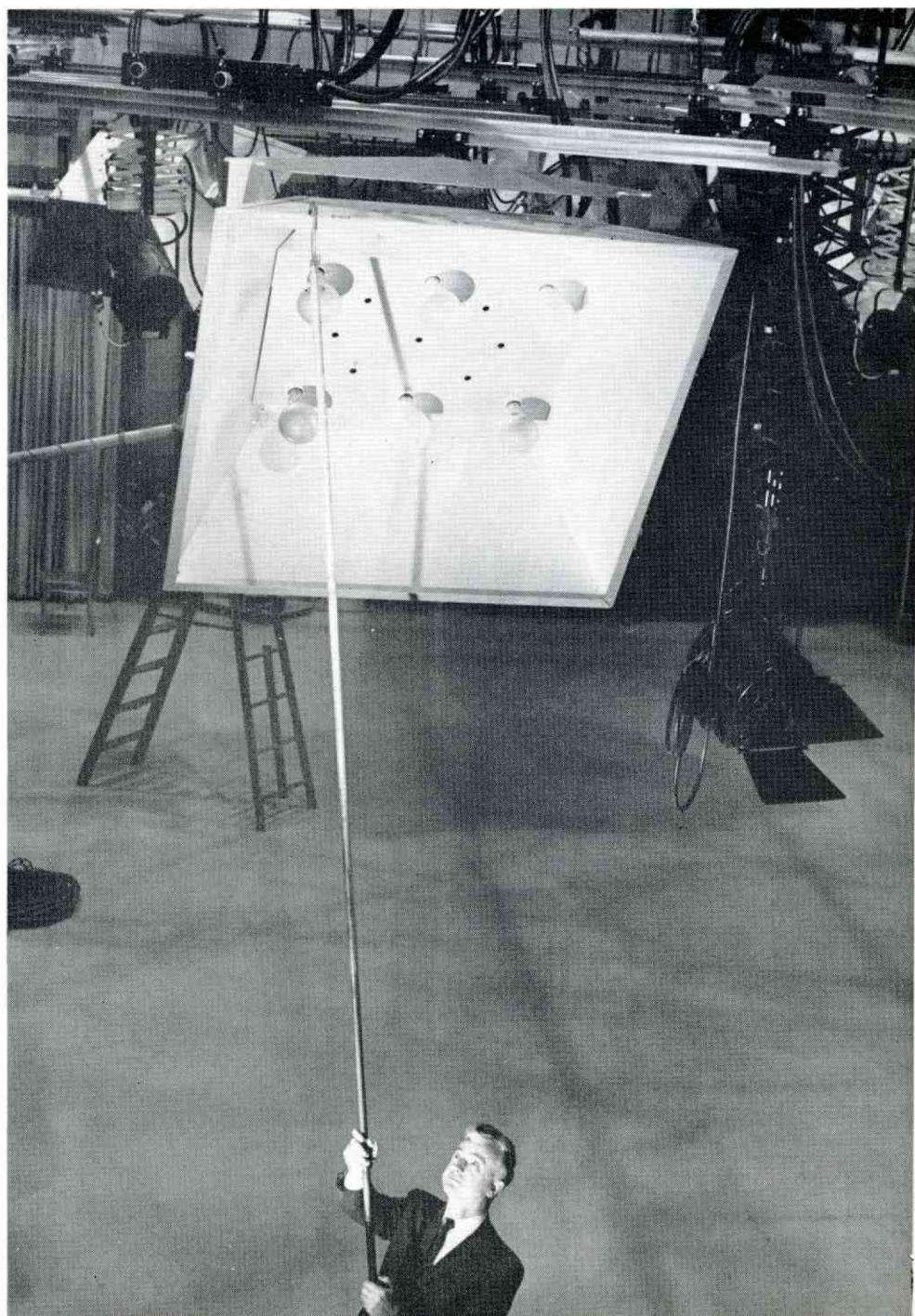


FIG. 12. Woodrow R. Crane, chief engineer WGN-TV, positions "lighting tub" from studio floor.



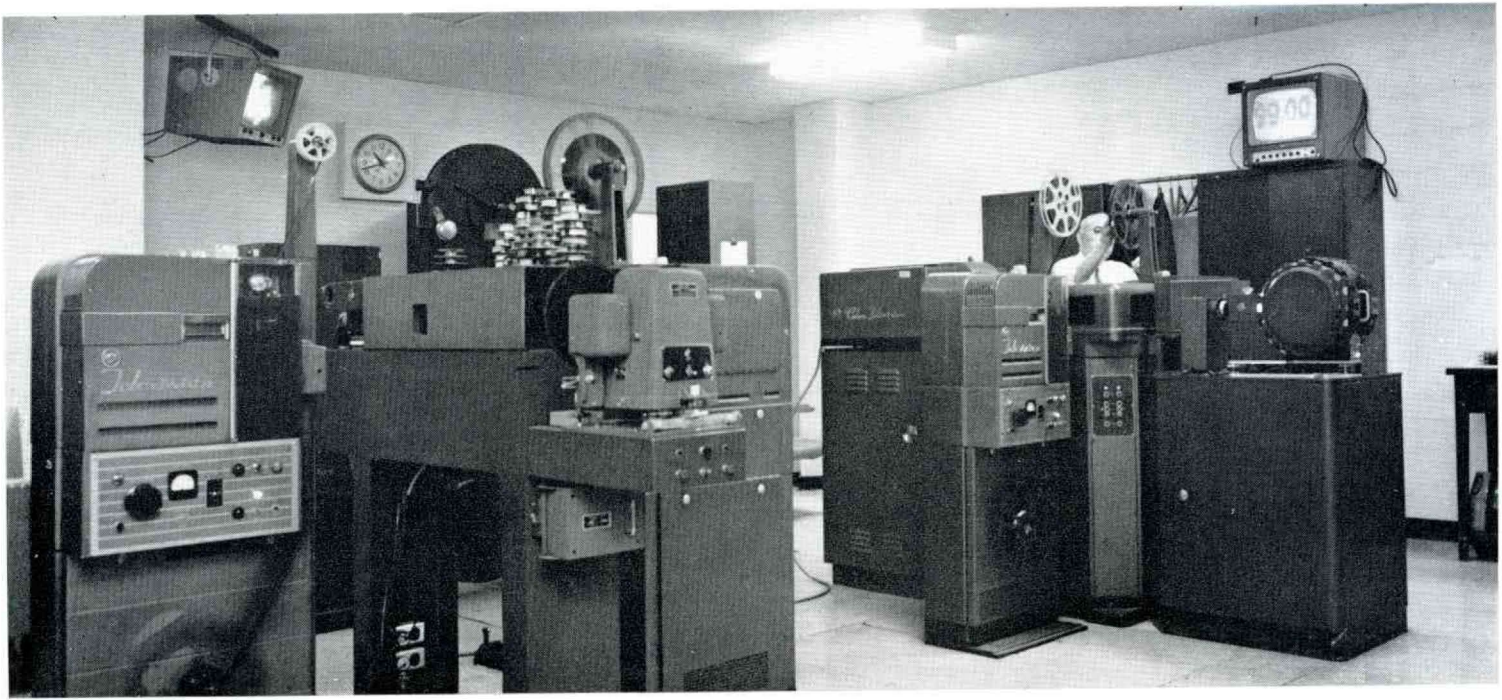


FIG. 14. Film room has two monochrome systems similar to one at left, and one color TV film system (right).

### Color Studios

Each of the three 47-by-72 foot studios may be employed for color. All have necessary facilities for lighting and camera connections. A camera patching panel in master control permits use of monochrome or color cameras in any studio. Suitable color backgrounds are available for use, and in addition a 2-curtain cyclorama runs entirely around the three usable walls of each studio. The two curtains are separated by a distance of approximately two feet. They are of suitable shades for use as color or monochrome backgrounds.

### Color Facilities

The WGN complement of color TV equipment includes 7 live color TV cameras, Type TK-41, 1 Color TV Film System with TK-26 Color Film Camera, a Color TV Mobile Unit, and complete test and transmitter facilities for color. Also, there are microwave links between studio and transmitter, and from mobile unit to studio and transmitter. Both links are TVM-1 equipment—designed for color TV operation. Thus, WGN is equipped to produce color commercials and color programs both in its studios and in its remotes, as

well as to transmit color over microwave and to broadcast it over the air.

### Color Film Facilities

In the film projection area, WGN is handsomely equipped. There are five separate film systems installed and operating. Two IKE chains are used with Balopticons for the handling of opaques. Two vidicon chains are used for black and white films and slides. Each is equipped with a TK-21 Vidicon Camera, a TP-11 Multiplexer, a TP-3 35mm Slide Projector, a 16mm and a 35mm motion picture projector. One has a TP-6 16mm projector, the other a TP-16.

Color movies and slides are handled by the TK-26 film system. This includes a TP-15 Multiplexer, TK-21 Vidicon Camera, TK-26 Color Film Camera, 2 TP-6 16mm Film Projectors, and a TP-7 35mm Slide Projector. With this equipment the station can adequately accommodate any combination of film requirements. Also, there is sufficient space for expansion.

### Master Control

Conveniently situated between film projection and video tape areas, as well as adjacent to studio control rooms, are master switching and camera control functions.

The master control area is arranged so that there are separate positions for the separate functions. One central panel is used for all switching of live, film, tape and remote programs. Shading of five film cameras (including the color film camera) is handled at the film position. Video control of 8 TK-11 cameras is accomplished at the monochrome camera control. At color camera position are controls for the 7 TK-41 cameras.

FIG. 13. Control room, 15 ft. above studio floor, gives good visual coverage of studio.





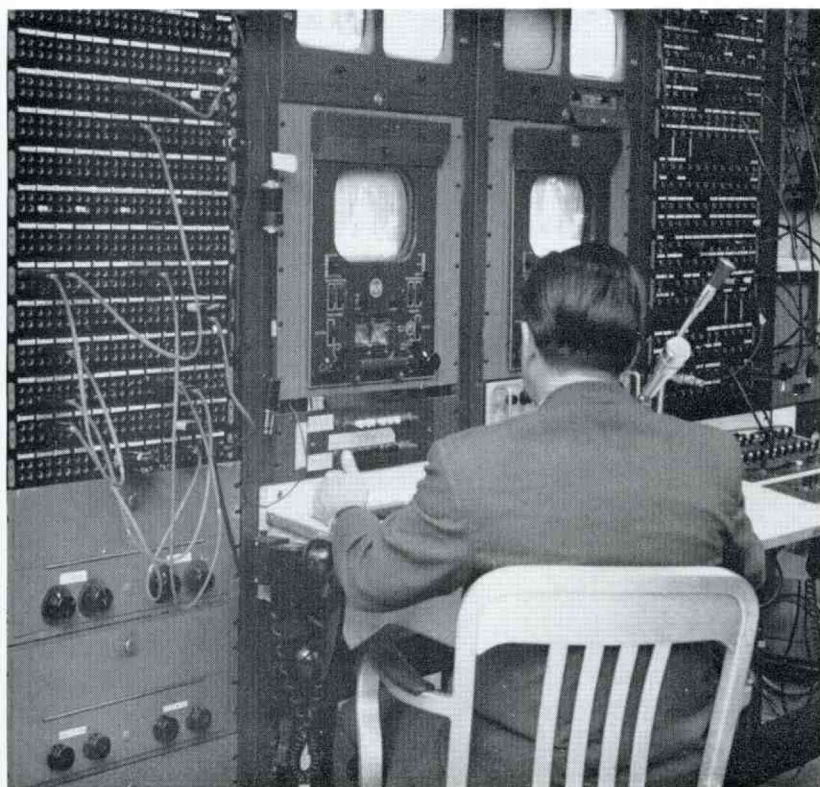


FIG. 15. Master switching for WGN television. In the master control area each function has a separate set-up.

FIG. 16. The four live studio color cameras are controlled here. ▶

FIG. 17. (upper right) Patching panel in master control permits use of any combination of color or monochrome cameras in each of the three studios.

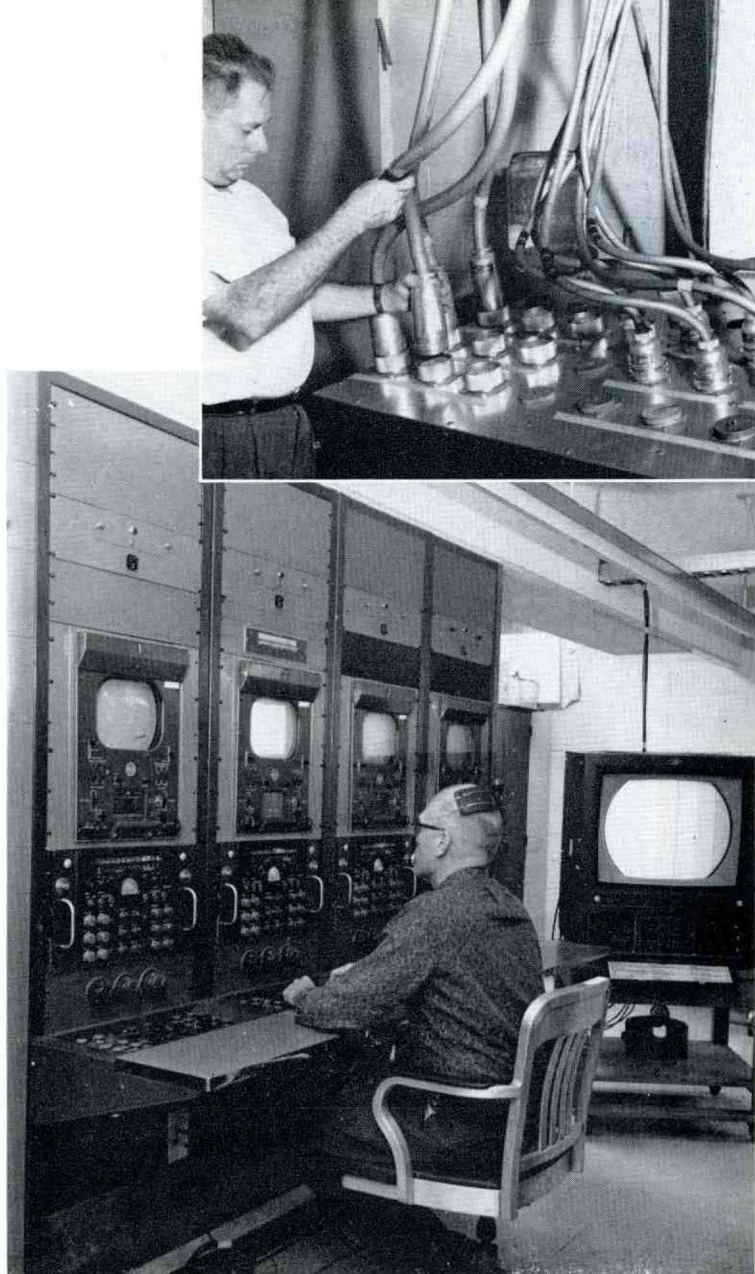


FIG. 18. Position for shading of film cameras in the master control area.



FIG. 19. Eight TK-11 cameras are adjusted from this position in master control.





FIG. 20. Turntable in floor and studio facilities in corner of garage are suitable for automobile and agricultural commercials.

FIG. 21. Type TT-50AH 50 kw TV Transmitter is used by WGN. Together with 12-section superturnstile this gives station maximum of 316,000 watts erp.





### Studio Equipment

Normally there are three TK-41 color cameras in Studio 1, three TK-11 cameras in Studio 2, and three in Studio 3. There are two TK-11 cameras in the routine studio (Studio 4) and 2 TK-11 cameras in the garage studio.

The routine studio is an area 30 by 16 feet used for two-minute newsbreaks, live spots, announcements, etc. The garage studio is an area 50 by 100 feet, featuring a turntable that can accommodate automobiles, tractors, trucks, and other heavy equipment for programs or commercials. It's complete with cyclorama and overhead lighting grid.

Also stored in the garage is the WGN complement of mobile equipment.

### Mobile Units

WGN has two radio news wagons equipped with audio tape and portable equipment for radio broadcasts. Also two complete TV units for making monochrome telecasts. And, a tractor-trailer combination equipped for making colorcasts.

Each mobile TV unit includes 3 TK-11 cameras with field controls and field switching equipment. Also portable microwave for transmission to either the studio or the transmitter. The color unit accommodates 4 TK-41 color cameras and is used extensively for the Chicago White Sox professional ball games. It also includes a TVM-1 microwave link.

### TV Transmitter and Antenna

The television transmitter is located on the 4th floor of the Prudential building in downtown Chicago. WGN uses a TT-50AH 50-kw TV Transmitter with a 12-section Superturnstile Antenna to give the station the maximum of 316,000 watts E.R.P.

Adjacent to the transmitter room on the 40th floor is a small film projection room and a small live studio. Also included are microwave links with studio and remote units, and switching facilities for programming directly from transmitter.

The 73-foot superturnstile antenna is higher than any other structure on the Chicago skyline, extending 914 feet above ground level. The antenna is mounted upon a unique 311-foot tubular steel tower, which is based on the 39th floor roof of the Prudential building.

The giant supporting tower, tapers in diameter from 10 feet at its base to  $3\frac{1}{2}$  feet at its top, scales 200 tons and consists of 23 tubular steel sections welded together. The 20-ton base plate is bolted to the structural steel framework of the building on the 39th floor. The tower is hollow, equipped with doors and ladders for ease of travel to the antenna.

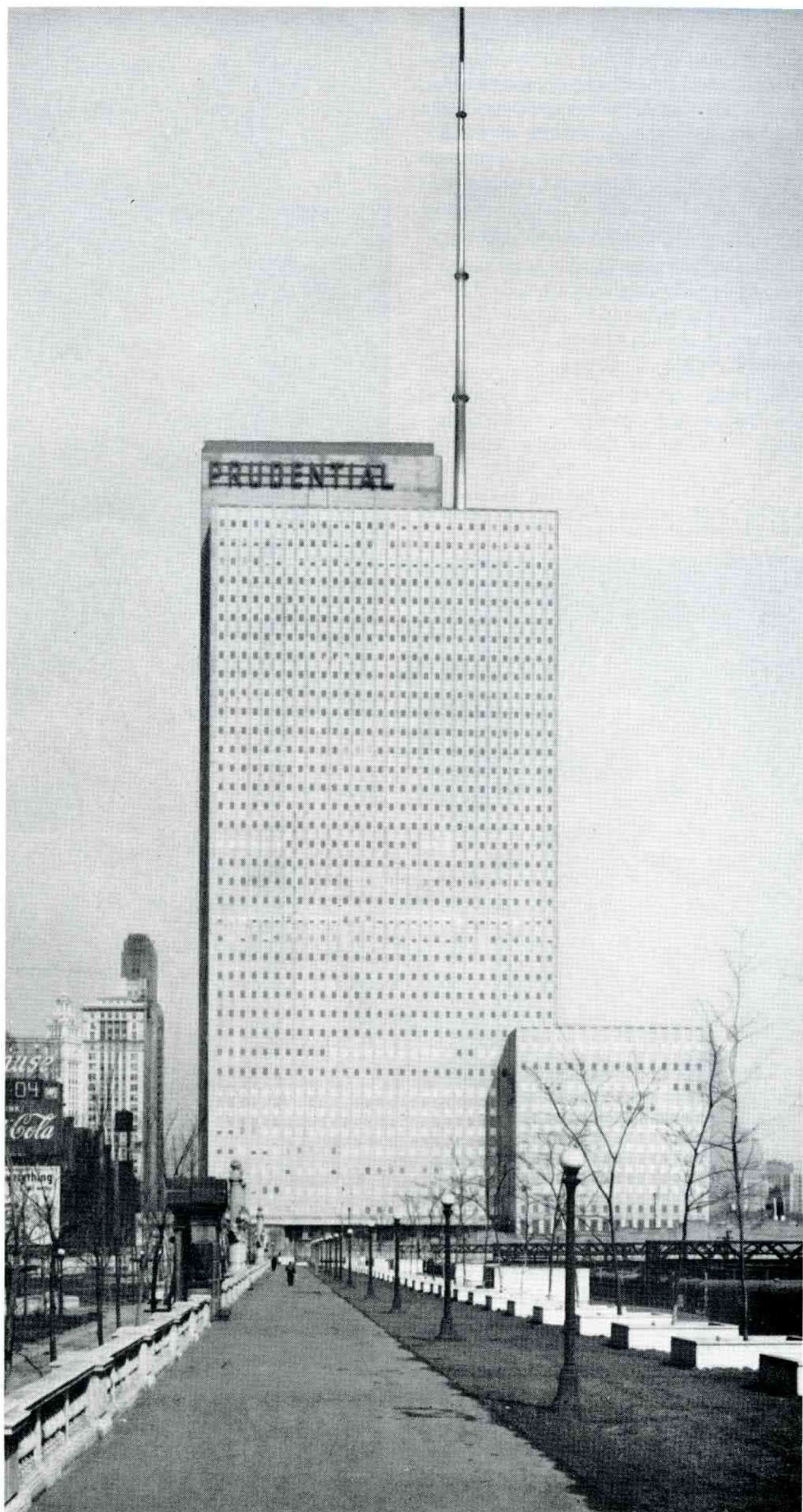


FIG. 22. Prudential building in downtown Chicago houses WGN television transmitter. It also supports attractive tubular steel tower with superturnstile antenna.



## WGN Radio

The new home of WGN contains two radio studios, each 30 by 18 foot, together with adjacent control and announce areas. Should large areas be required for radio programs, use is made of one of the TV studios.

WGN radio transmitting equipment is located on a 100-acre plot near Roselle, Ill., some 22 miles west of the new building. It is reached in a 30 minute automobile drive over a superhighway from the studio. This is an unattended operation with supervisory remote control from the Prudential building.

The radio station employs a Type BTA-50G 50-kw AM Ampliphase transmitter, one of the first of this unique type, in-

FIG. 23. Radio studios and production facilities are also accommodated in the new building.

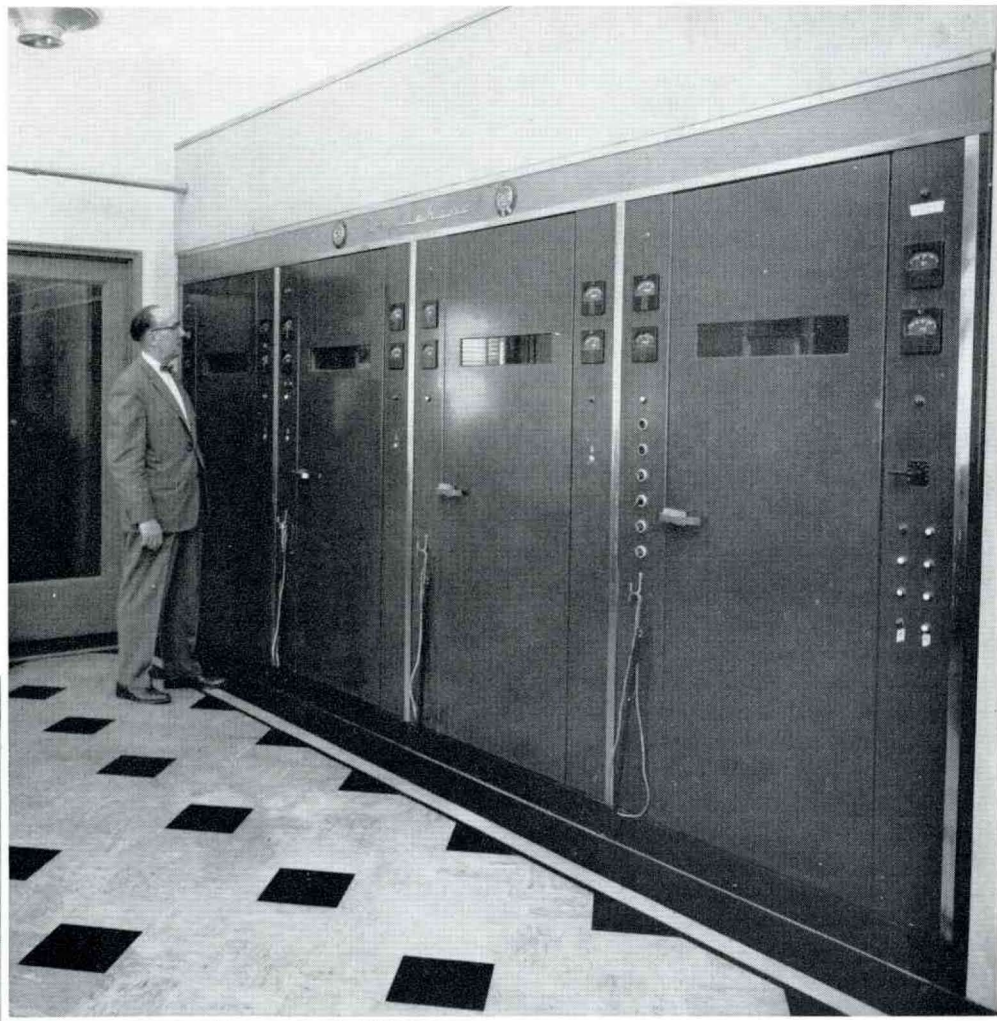


FIG. 24. WGN uses BTA-50G 50 kw Ampliphase transmitter. (It occupies same area required by former 10 kw transmitter.) Radio transmitter is remotely controlled 24 hours a day. (Shown is G. William Lang, Chief Engineer, WGN Radio.)

stalled in December, 1957. A 5-kw transmitter is available for standby use. Both main and standby transmitters are remotely controlled from the TV transmitter area in downtown Chicago.

The main radio antenna consists of a 750-foot guyed tower, located 900 feet from the transmitter building. A standby antenna tower 250 foot high is also installed. The station has been on the air from this location since March, 1939. However, WGN radio had its beginning long before—on June 1, 1924.

### Emphasis on Color

For more than one third of a century, WGN has served the middle west, in terms of information and entertainment, at first in radio, then in television. During the past few years, the station has become one of the foremost pioneers in local color tv, in its continuing effort to serve the public interest. As vice-president Quaal puts it, "We believe in color television because it is better television."