

# RADIO & TELEVISION NEWS

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DISH ANTENNA  
PICKS UP  
TELEVISION  
REMOTES

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# Television's LARGEST

mountain range in the "line of sight," this giant antenna was used in conjunction with a 9-foot diameter dish at Pasadena to insure a perfect transmission.

Known familiarly to Don Lee video engineers as "The Mountain Shooter," this parabolic reflector operates on a 100-foot track. This particular installation permits the antenna to be used to pick up programs from the San Fernando Valley to the north as well as from Hollywood, which lies to the south of the station. Overturn is prevented during high winds by a special track construction which prevents uplift as well as acting as a bearing surface. Full adjustment as to azimuth and elevation can be made. These adjustments are accomplished by means of a large electric rotary control which is actuated from the control booth in the building. This allows accurate beaming of the reflector while monitoring the studio control screen during tests preceding the regular program.

"The Mountain Shooter" is constructed entirely of metal. The ribs are of welded aluminum while the base and mesh are of steel. The device weighs more than a ton and has a total height of 20 feet and a width of 16 feet. The focal length is 4 feet. The folded dipole and reflector are positioned at the focus.

In the photograph appearing at the top left-hand corner of page 38, Bill C. Ames, the designer and builder of the parabolic reflector, is shown check-

This 16 foot parabolic reflector is located on top of the Mt. Lee television studio. It is used for pick-up of signals from remote locations and is the largest such unit being employed in video work.

**By HARRY R. LUBCKE**  
 Technical Director of Television  
 Don Lee Television System



The author, a well-known figure in the video industry, has been Director of Television for the Don Lee Broadcasting System since 1930. He is a member of several professional radio and television societies and author of a number of technical articles dealing with television. He received his Bachelor of Science degree from the University of California at Berkeley in 1929 and did graduate work at the University of California. He received citations from both the Army and Navy for his wartime developments in the field of airborne and other vitally-needed equipment.

**D**ON LEE, on the West Coast, operates one of the most unique television set-ups in the United States. The station, KTSL (W6XAO), went on the air December 3, 1931, on a one-hour-a-day, six-days-a-week schedule. The station transmitted on 44½ mc.

From its modest beginning on the eighth floor of the Don Lee Building at 7th and Bixel Streets, the station has grown to its new present site on Mt. Lee—the first structure in the world erected exclusively for telecasting. Erected just before World War II, the new facilities are complete even to a swimming pool!

One of the unique features of this station, which serves the Hollywood and San Fernando Valley area, is the use of a 16 foot parabolic reflector mounted atop the Don Lee studio building. This unit, shown on this month's cover of RADIO & TELEVISION NEWS, is used to pick up signals from remote locations. It is the largest parabolic reflector used for television operations in the country.

It was constructed for and first used on January 1, 1948, for the Don Lee pickup of the "Tournament of Roses" parade from Pasadena, California, twelve miles east of the base transmitter. To offset the effects of a 200-foot

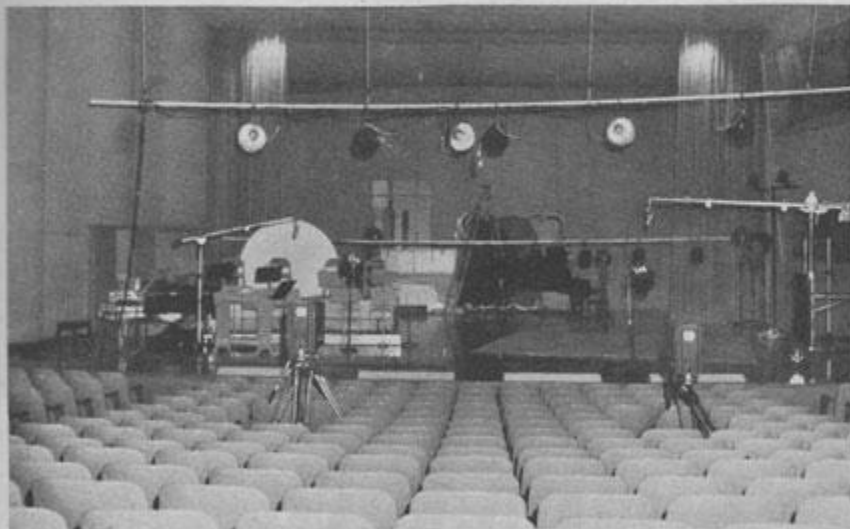
Left to right: John Barnett, asst. conductor of Los Angeles Philharmonic; Carleton Winckler, Don Lee's TV coordinator; Gil Wyland, engineer; and Stuart Phelps, director of special events, monitor a screening of the Philharmonic concerts which were done as a remote pickup over Don Lee's KTSL.



**RADIO & TELEVISION NEWS**

**Don Lee's 16-foot dish is used to pick up remote transmissions despite the intervening mountains.**

# PARABOLIC ANTENNA



A television studio in Don Lee's new \$3,000,000 building in Hollywood. The "Music Hall," a variety show, is telecast every Tuesday evening from this studio, before an audience of 350. Note positioning of the video cameras.

ing standing wave ratios with a "Megasweep" oscillator which supplies an r.f. signal of rapidly and widely varying frequencies. On top of the oscillator is a vacuum tube voltmeter which is used to measure the voltage on the quarter-wave stub which may be seen in the antenna line (in front of the "Megasweep" oscillator). The author records this data while Larry Rohrer, who did the machine work on the reflector, watches the operation.

Because of its giant size, the antenna system has an excellent signal-to-noise ratio, the signal gain being 20 db. over that of a conventional dipole. With an antenna of this gain outside interference is unknown. The beam width to the half-power point is 5 degrees in azimuth, 3 degrees in tilt.

The antenna has been used daily since its construction to pick up program material in Hollywood and its environs. One of the most interesting programs, from a technical standpoint, was a telecast of a symphony performance from the Philharmonic Auditorium in downtown Los Angeles. In order to avoid buildings in the signal path it was necessary to erect a transmitting antenna several hundred feet from the auditorium and run coaxial cables from the program site to the transmitting antenna.

Prior to the use of the "dish," diathermy harmonics and communications harmonics were occasionally recognizable in the background of the video transmissions. Since the installation of the parabolic antenna system, this interference has been removed.

The studio-transmitter building at

Mt. Lee is a 100 square foot stucco structure with soldered-seam copper interlining under the cemented floor, between the side walls, and under the roof. This technique was employed to exclude outside radio frequency interference which might disturb the television pictures.

The building has complete sponsor viewing facilities, a special transmitter room, and a uniquely designed transcription and film projection room.



Over-all view of the Mt. Lee studio. The parabolic reflector had not been installed at the time this photograph was taken.

A performers' makeup room, scenery storage docks, a machine shop, and a suite of executive offices are also housed at Mt. Lee. The main studio measures 60 by 100 feet and is the largest ever built for television. As many as 25 scenery trucks can move onto the main stage floor.

The large stage is fitted with 20 microphone outlets. Catwalks around all sides and across the middle of the  
(Continued on page 116)

Prudence Penny, home economics expert, receives a visit from Walter Kingsford, stage and screen actor, on her television show over TV station KTSL.



## **Parabolic Antenna**

*(Continued from page 39)*

stage allow optimum placement of the necessary illuminating elements. Upwards of one hundred lamps of the motion picture and theatrical type are often used to light as many as six sets at once. Remote control switches, operated by push-buttons in the monitor rooms, control the banks of lights.

The physical facilities of the station include four studio image orthicon cameras, four remote cameras, two film projectors complete with synchronizing generators, distribution amplifiers, monitors, and an impressive assortment of auxiliary equipment.

The television sight and sound transmitters occupy a room 45 feet square on the second floor of the building. Monitor facilities for checking the carrier frequencies of the transmitters, the modulation of the transmitters, and the outgoing signal and waveform are continuously available. A coaxial cable patch bay, one of the first in the country, is used for changing signal connections throughout the building as may be required.

The control room windows are equipped with green shades so that the lighting in the control room can be adjusted to a comfortable level. The control room-to-studio windows are double and are slanted for maximum sound insulation and glare filtering.

The station transmits on Channel 2 (54-60 mc. band) on a regular schedule every day of the year. Both live and film program material is carried. The station transmits on a visual frequency of 55.25 mc. and an aural frequency of 59.75 mc. The waves are horizontally polarized and best results are obtained by placing the conductors of the receiving antenna horizontally.

"The Mountain Shooter" is destined to play an even greater role in the intricate Don Lee video network upon the completion of a new transmitter being built atop Mt. Wilson at a cost of more than \$1,000,000. When this transmitter goes into operation, the network will include the Mutual-Don Lee \$3,000,000 studios at 1313 N. Vine Street, Hollywood, the present extensive Mt. Lee site, and remote pickup facilities.

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