



Television

TURNS THE CORNER!

BY RAY F. FEAZER

And Los Angeles is ready for it. In fact, though most Angelenos are not aware of it, television broadcasts are released here twice daily. Let's tune in

- Don Lee Building to see science's latest marvel. If you happen to be driving around Silver Lake some Wednesday evening you will get further evidence of television experiments in Los Angeles. You may see a large group of automobiles surrounding a residence that has a small sign, "Television Demonstration," in the window.

"What's this?" you may inquire of those going inside the house.

"Fellow named Lubcke of KHJ is holding a television test out here" you will be told. "Has a bunch out here every week—radio engineers, motion picture moguls, newspapermen and what not."

"Television, eh? Well, I've always wanted to see one of those contraptions work. Guess I'll go in too."

"Not unless you have tickets," you will be informed.

If you are lucky enough to get tickets for one of these television demonstrations you will see some amazing things. Come with me to one of these sessions. You'll get as big a thrill out of it as the time you clapped on a pair of ear phones, jiggled a "cat's whisker," and listened to your first radio broadcast!

We enter a room that has been converted into a tiny theater. In the corner are two cabinets. One is a regular high-boy radio receiver. The other looks much the same but is slightly larger. Where the loudspeaker should be is a curved mineral screen—about ten inches across. This is the television receiver.

The television set is warmed up and a greenish square of light flickers on the mineral screen. Soon the title of a well-known newscast flashes in a nine-inch square on the screen and the greenish glow dies out. The newscast comes over the Don Lee television station, W6XAO, on 45,000 kilocycles; the sound comes from KHJ on 900 kilocycles. There is perfect synchronization between the sight and sound—which is remarkable in view of the difficulty that the motion-picture industry had when talkies first came into existence.

The scene we are watching has been sent over the air a distance of three and a half miles. Because of two intervening ranges of hills, the conditions are equal to ten miles, Lubcke tells us.

Television only a few years ago presented a blurry, wavering picture that could be hardly recognized. But modern television has no excuses to offer. The pictures are clear and distinguishable.

Continued on Page Twenty-eight

For ten years television has been the problem child of the communications family. Today it is getting ready to put on long pants for that cold plunge from its nursery to the outside world.

In the past decade television has been the pet of the engineers, the technicians and the scientists. Its bigger brothers—the radio, the motion pictures and the newspaper—have in turn ignored the young offspring, scoffed at its possibilities and been scared out of their wits by it.

Just recently the allied arts and sciences of radio, motion pictures and the newspapers have taken time to get acquainted with their erratic younger kin and have just begun to appreciate him.

Television has been "just around the corner" since 1930. The man in the street will tell you: "Sure, television has been ready to shoot for six years. It has been withheld because the average depression struck citizen couldn't afford one of the sets."

That is not entirely true.

For the past six years engineers have been working out the particularly knotty problems connected with television. The year 1936, however, marks a turning point in the progress of this visual science. Results of far-flung laboratories have been crystallized into some sort of a basic pattern on which the future of television must be constructed.

Cautious engineers who once dared make no predictions beyond hazy and vague visions into the distant future now tell us in concrete terms:

"Television should be here in two years."

"Sets will cost around \$350 at the start and will go lower with mass production."

"Television will be a local thing—no coast to coast broadcasts. The maximum distance of broadcast is likely to be fifty miles."



HARRY R. LUBCKE TUNES IN THE NOTES AND FEATURES OF GLADYS SWARTHOUT. THIS WILL SOON BE A PART OF AMERICAN HOMES

"Radio sets can never be converted into television sets."

And when television does arrive—in not more than two years we are assured—Los Angeles will be ready for it!

In fact, though 95 per cent of the population is not aware of it, television broadcasts are released twice daily from KHJ. These go on the air every afternoon at 3:30 and 6:30. KHJ is the only radio station in the United States that releases regular television broadcasts at present.

Heading KHJ's regular television staff is Harry R. Lubcke, 31-year-old engineer, who is one of the foremost television authorities in the country today.

They are mostly all young men—these televisionists.

After graduating from the college of electrical engineering at the University of California at Berkeley, Lubcke was engaged by the late Don Lee to work on television. The first television broadcast from the local station went on the air in December of 1931.

Culminating several years of pioneer work, Lubcke put on public demonstration at KHJ last June a new 300 line television receiver and improved transmitting equipment. This was the first public demonstration of modern television ever to be held in the United States. Thousands of people crowded into the

TELEVISION TURNS THE CORNER!

Continued from Page Three

With larger screens and other technical improvements they should be as suitable as the modern motion picture.

You see a shot of Premier Blum of France making a speech. His face, the wrinkles in his clothes, the gestures of the crowd are all plainly visible. A shot of war-torn Spain—though in miniature—shows men fleeing down streets, depicts the wreck of an airplane, pictures relief warships bombarding the coast.

The old scanning disk method of receiving television broadcasts has definitely been discarded. Modern televisionists are using the cathode tube, explains Lubcke. With the cathode tube millions of tiny electrons are thrown against the mineral screen. These tiny points of light—100,000 of them—give us the picture. It is the same principle upon which newspaper engraving is based. Look carefully at any newspaper picture and you will see that it is made up of a mass of tiny dots. Similarly the picture on the television screen is made up of thousands of pin points of light.

Although Lubcke and his associates at KHJ have made great strides in the perfecting of television, they are not keeping all their secrets to themselves.

"For a large, stamped, self-addressed envelope we will send plans and directions for building a television set to anyone who writes," the television expert promises.

"With a moderate amount of mechanical skill and a certain knowledge of radio, anybody can build one of these receivers for a little over \$100," he says. "We've already sent out something like 2000 sets of plans—not only in this country but to all parts of the world."

THERE are several such homemade television sets in Los Angeles today. They help Lubcke and KHJ make tests on reception, distance, visibility.

You cannot buy a commercially made television set at the present time. In 1931 Dr. C. F. Jenkins of New Jersey started out on an ambitious program to manufacture sets—but this was for old-style, sixty-line television. Dr. Jenkins is dead now and his company is defunct.

"Commercial sets will not be available for a year or more," says Lubcke. "Outlandish estimates ranging all the way from \$150 to \$1000 have been made on their price. The first sets, I believe, will run about \$350 and go lower as they are built in mass production—just as radios did."

KHJ is one of the four centers in the United States where serious scientific work in television is being carried on. The other three include the R.C.A.-Victor Corporation of New York City with experimental work being carried on by Vladimir Zworykin, the Farnsworth laboratory headed by Philo Taylor Farnsworth at Philadelphia and the Philco radio laboratory at Philadelphia.

The R.C.A.-Victor corporation is spending \$1,000,000 in their television experiments in New York City. They have established a transmitting station in the Empire State Building and are now privately making field tests.

Some time this month the first television broadcast between New York and Philadelphia has been scheduled. The high frequency television waves will be literally piped between the two cities.

This will be an experiment that will be closely observed by television experts in all parts of the world—for on it may

hinge the solution of one of television's trickiest problems. That problem is distance.

The way it will be done is this: For some time now telephone and telegraph companies have been using a "coaxial" cable which carries 210 telephone conversations or from twenty to forty telegraph messages at one time. Though it has a difficult sounding name, the coaxial cable is very simple. It consists

of a bare wire, stretched inside a copper tube. The television waves travel along the air inside the pipe.

Along this cable then—which cost \$500,000 to install—will be piped the television impulses. At the present time engineers declare that television cannot be broadcast more than fifty miles. Unlike radio waves, television waves will not follow the curvature of the earth but travel only in a straight line.

Abroad, Great Britain is leading the race to launch television in a big way. Subsidized by the government and supported by the taxpayers' money, television there has had ample funds with which to experiment. The British Broadcasting Company has recently converted Alexandra Palace—a relic of the Victorian days atop a North London hill—into the world's first full-time television station. The British, too, are laying a television cable between London and Birmingham—the site of England's second station.

Regular broadcasts will start soon and plans have been made to televise King Edward VIII on Christmas Day when he will send Yuletide greetings to the empire. The English televisionists are pointing toward Edward's coronation early next year with an ambitious plan to broadcast this event also.

Broadcasting officials and radio equipment manufacturers in the British Isles are making bold assertions that "looking in" will be a common thing soon. Receiving sets have been estimated at prices ranging from \$35 to \$100.

Germany chalked off a milestone in her television progress last March when a two-way television and telephone communication was inaugurated between Berlin and Leipzig. Besides this the Germans are planning a program that calls for the erection of more transmitters, the production of home receiving sets and direct, outdoor portable equipment.

A new 10,000-watt image transmitter is projected for the Eiffel Tower in Paris to supplement the 700-watt one now in use.

Japan has set the year 1938 as the climax to a long series of carefully planned television tests under the direction of the Japan Broadcasting Company. Technically, say the Nipponese experts, they are all ready to begin broadcasting. However, television will be withheld until a cheap and efficient receiving set can be designed and built. Japanese television broadcasts will begin in April, 1938, with the completion of a new building for station JOAK in Tokyo.

That is the story the world over. Technically television is ready to begin at almost any time now. A maze of economic difficulties with regard to receiving sets and programs is the joker in the deck.

TELEVISION will probably come to depend a great deal upon the motion-picture industry for films to be broadcast. At first—as at the present time—news reels and other short subjects will be sent out over the ether. Later, full-length pictures will be shown. If television companies tried to produce their own films they would find that it would cost as much as \$200,000 for each production.

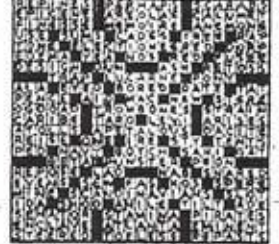
Some of the technical problems that have not been ironed out satisfactorily yet are the size of the receiving screen, interference of television waves by hills and automobiles, and distance from the broadcasting station.

Television will never take the place of motion pictures, it cannot possibly crowd out the newspapers, and it seems unlikely to entirely eclipse the radio. It can—and will—harmonize with all three. It will supply directly to the home in visual form historic and noteworthy events of the day in a way that is not possible now.

The next two years will see television sets in thousands of American homes. Television has turned the corner!

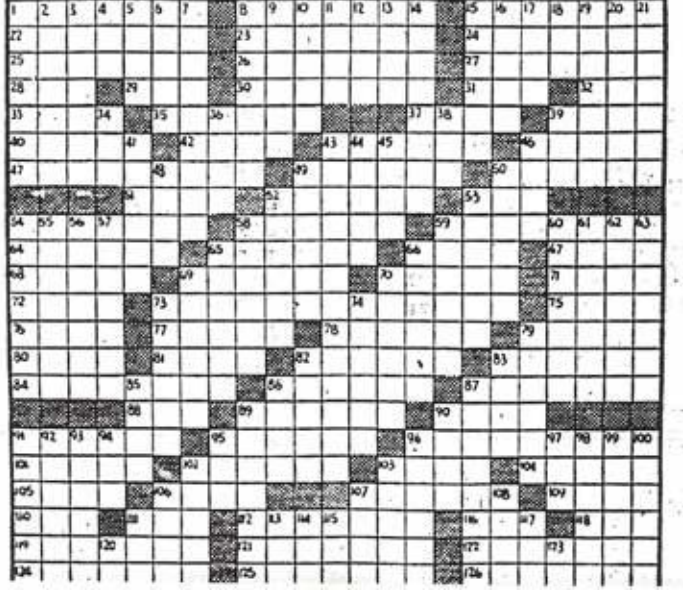


- DOWN 1-Error of conduct 2-To later 3-The round herring 4-Hard-shelled fruit 5-Among 6-The dorsal segment of the fore limb of a vertebrate 7-These warts impress their on skin, hair 8-Shoulder blade 9-It is 10-Haranger 11-Dorsal line 12-Arra means 13-Duster 14-Pencil 15-Dice 16-Even 17-Irregular bodies 18-East Indian herb 19-To name, eat 20-Evring Gables 21-To urinate, as a 22-Whallow dish 23-Snowed and thin 24-These insect 25-To row 26-Along 27-Landlocked 28-Rugged mountain 29-Whisper 30-Cracker 31-Permitting name 32-The last action of an instrumental composition 33-Church officers 34-Meritless 35-Give heed 36-This insect 37-A hydrocarbon of the paraffin series 38-Things taken into a living body 39-A set 40-Hanging dog 41-Remodest 42-Patrol a waiting woman 43-In American botanist 44-Part of Great Britain 45-Jawed 46-Wandery 47-Office to test weights and measure 48-Mixture 49-Whaline vessel 50-Merely 51-A teasing of liability law 52-Argentine dance 53-Crystalline line 54-To encircle 55-To strip of furniture 56-Pitcher 57-A slender thread-like filament 58-Small sail vessel 59-Scud 60-A non-metallic element occurring abundantly in nature 61-Icelandic symbols 62-To damage 63-Provided food 64-Several 65-English 66-English coin 67-Marked with parallel grooves 68-Diameter 69-Obvious element 70-Having a peculiar shape 71-It may be 72-Crimson 73-Warn by exposure to 74-Petiole 75-Too bad 76-It may be 77-Surveyor's assistant 78-It is 79-It is 80-It is 81-Opposite of sweater 82-Higher 83-Deceitful 84-Pedaled 85-Male cone 86-Toward 87-Cover part 88-It is 89-European small 90-Keenly 91-A hat made of beaver fur 92-A covered earthenware baking dish 93-It is 94-It is 95-It is 96-It is 97-It is 98-It is 99-It is 100-It is



SOLUTION OF LAST WEEK'S PUZZLE

- ACROSS 1-Mineral 2-Nonprofessional 3-Madness 4-Madness 5-It is 6-It is 7-It is 8-It is 9-It is 10-It is 11-It is 12-It is 13-It is 14-It is 15-It is 16-It is 17-It is 18-It is 19-It is 20-It is 21-It is 22-It is 23-It is 24-It is 25-It is 26-It is 27-It is 28-It is 29-It is 30-It is 31-It is 32-It is 33-It is 34-It is 35-It is 36-It is 37-It is 38-It is 39-It is 40-It is 41-It is 42-It is 43-It is 44-It is 45-It is 46-It is 47-It is 48-It is 49-It is 50-It is 51-It is 52-It is 53-It is 54-It is 55-It is 56-It is 57-It is 58-It is 59-It is 60-It is 61-It is 62-It is 63-It is 64-It is 65-It is 66-It is 67-It is 68-It is 69-It is 70-It is 71-It is 72-It is 73-It is 74-It is 75-It is 76-It is 77-It is 78-It is 79-It is 80-It is 81-It is 82-It is 83-It is 84-It is 85-It is 86-It is 87-It is 88-It is 89-It is 90-It is 91-It is 92-It is 93-It is 94-It is 95-It is 96-It is 97-It is 98-It is 99-It is 100-It is



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