

1950- BANNER YEAR FOR TV

Record production and the color turmoil highlighted 1950. Restrictions and parts shortages will hold 1951 video receiver production below the five million mark.



(Left) Special conveyors at the Du Mont plant. Many such devices were adopted by manufacturers to increase production. (Center) RCA color camera with cover removed. The long drawn-out color battle ending with FCC approval of CBS system was 1950's big surprise. (Right) Green Radio Distributors sales floor. With many commonly-used components in short supply by end of 1950 distributors were being hard pressed and 1951 will find the situation even more acute.

By
HAROLD BECKER
Eastern Editor
RADIO & TELEVISION NEWS

IN December of 1949, television manufacturers were asked to estimate the volume of television receivers to be produced in 1950. The prognostications ranged from 2½ million to 7 million. Based upon these rough estimates, the industry figured it would produce four million receivers. But even this average goal seemed far fetched considering the component and tube requirements necessary to carry out such a schedule. Most industry observers felt that there just weren't enough kinescope manufacturing facilities to meet anything but a four million figure.

It probably would be fair to say that practically everyone in January, 1950 felt that a four million year was in store—that is everyone but the buying public. The consumer fever for television was so great that it put new meaning in the word "expansion." For in the year 1950, television receiver production became a billion dollar business. There were approximately seven and a half million television receivers produced, far more than were produced from 1946 through 1949.

Today there are more than ten million receivers in the country, with an estimated viewing audience of 92 million people. There are 107 stations in 63 trading areas, reaching approximately 62% of the total population.

The tremendous growth of the tele-

vision industry primarily manifested itself in set production. Here is where manufacturers themselves underestimated the part they were to play in 1950.

As of the beginning of 1950, consumer demand for television exceeded existing production facilities of television manufacturers. In a market where a television set was paramount, most consumers held no trademark allegiance, but rather were willing to purchase the set they could get at the time they wanted it.

What motivated this consumer demand?—television itself and its function as an entertainment medium. To see television was to be sold on it. For the first time the consumer was offered an opportunity to view the world within his own living-room. The demand was unquestionably there. It was up to the television manufacturers to meet this demand.

Parts and Tubes

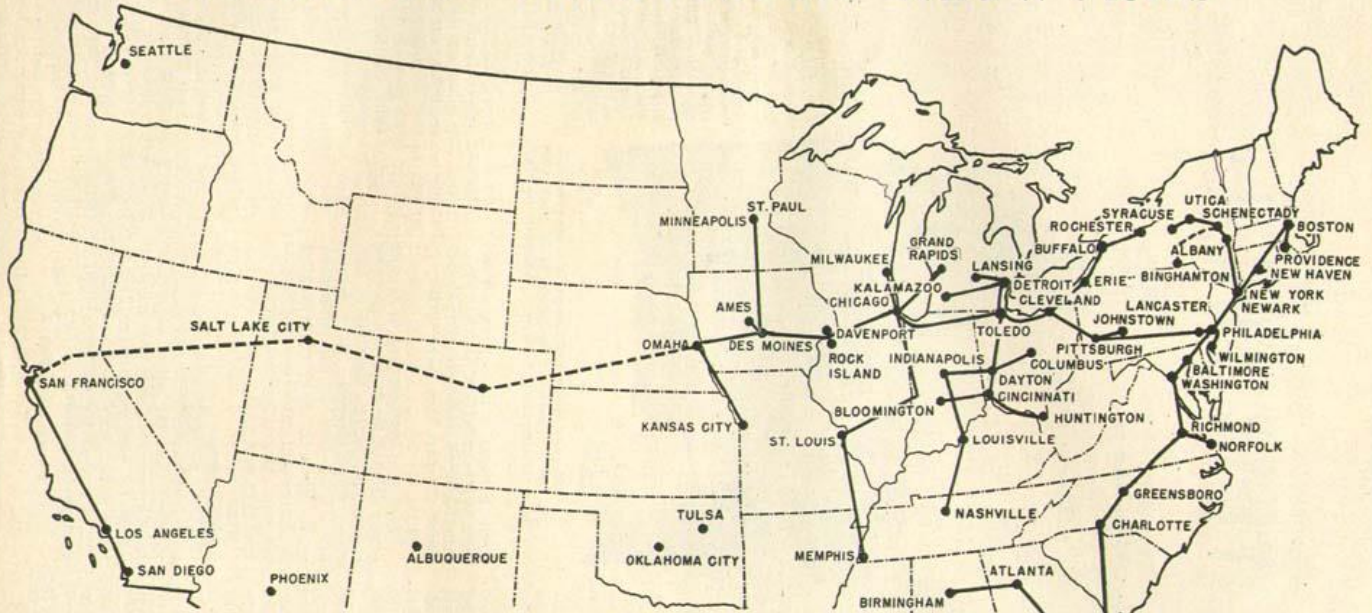
One of the basic deterrents to all-out production of television receivers

at the beginning of 1950 was the tight situation to be found in parts and tubes. This situation became increasingly worse as the year progressed, so much so that manufacturers literally hunted down overseas vendors.

Undoubtedly the greatest story in the advancement of commercial television lies in what the parts and tube manufacturers did to increase their production. In equipment that contains as many tubes, condensers, resistors, etc. as a television set, you can well imagine the production necessary to meet the 1950 consumer demand for 7½ million receivers.

The production story of the television kinescope is, in itself, a marvel of creative productive genius. Unless you have seen the manufacturing facilities necessary to produce a television kinescope, you cannot possibly imagine the difficult position the industry was in to meet the requirements for picture tubes. Yet, here again, kinescope manufacturers met the demand. They converted every possible bit of floor space to production and added new

INTERCITY TELEVISION NETWORKS



— In Service
 - - - Planned For 1951

This map includes, in addition to the Bell System television network routes, all other intercity connections owned and operated by companies other than A.T.&T. The Bell System, however, provides over 90% of the facilities in use today. At the end of 1950, the Bell System network comprised 17,344 channel miles with service available to 42 cities. Cities hooked into the network during 1950 included: Memphis, Norfolk, Johnstown, Charlotte, Greensboro, Atlanta, Birmingham, Jacksonville, Indianapolis, Louisville, Davenport, Des Moines, Rock Island, Minneapolis, St. Paul, Omaha, Ames, and Kansas City. In addition, two northbound radio relay channels between Los Angeles and San Francisco were put into service. The "superhighway" (the Chicago-to-New York radio relay system which was placed in service September 1, 1950) was the first section of a relay system which will eventually span the continent. The Omaha-to-San Francisco link, scheduled for completion late in 1951, will be routed through Salt Lake City. Construction of radio relay towers for this second section is now underway. While a great deal of interest has been centered on the transmission of television programs over these facilities, their primary value is in carrying telephone conversations. With present carrier equipment, a pair of coaxial tubes can carry as many as 600 simultaneous telephone conversations, yet an entire tube is required to carry a single video program. A recent study by the Long Lines Department of A.T.&T. shows that total facility charges to television stations averages about 10 cents a mile for a half-hour of program time. For a hookup involving a station in each of the 42 cities served by the existing Bell System facilities, the charges per station for a half-hour of program time would run approximately \$10.

TV STATIONS IN TEXAS
 DALLAS
 FORT WORTH
 HOUSTON
 SAN ANTONIO

212
 THE BELL SYSTEM TELEPHONE COMPANY
 PHOTODUPLICATION SERVICE
 1950

facilities in a kinescope expansion program. Thus, television picture tubes were produced in quantities heretofore considered impossible, and television was given sight.

Labor

Television manufacturers were indeed fortunate in that an existing mass production labor market was available in the radio industry. The orientation of a radio production worker was easily accomplished without too much time expended in training. Thus a study of the effect of television manufacturing upon the general labor market will indicate that the rise of workers involved in television production has closely paralleled the radio market.

Receiver Design

More than anything else, competition and consumer demand influenced the design of television receivers. Manufacturers were forced to take the high cost out of television receiver design and to translate design into mass production.

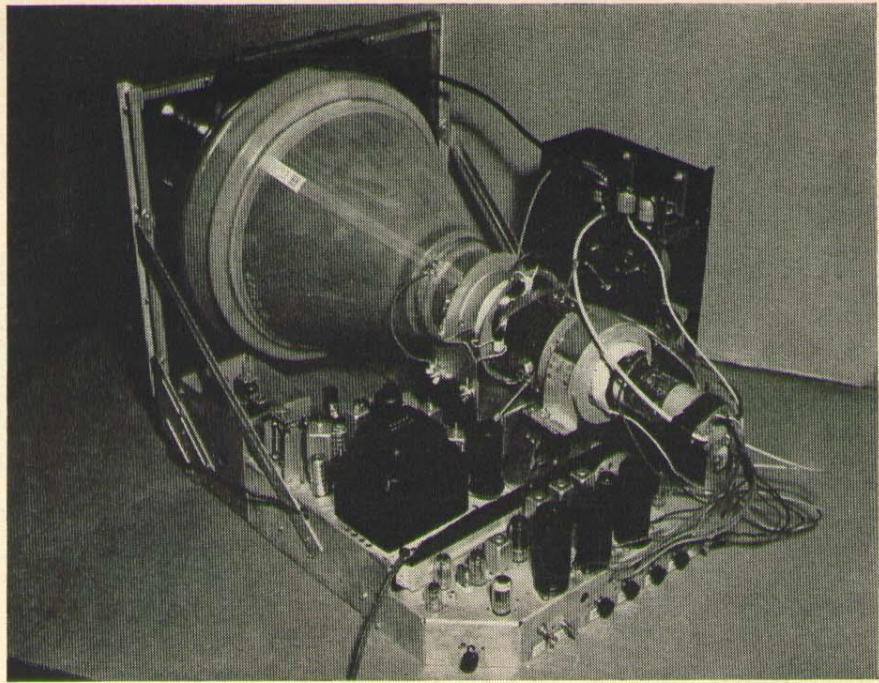
The most outstanding design change was in the increased use of the intercarrier sound system. For example, in the 1949-1950 models manufacturers were using the common split i.f. method of sound reception. However, in their 1950-1951 models the trend was reversed, with the majority of television set manufacturers resorting to the use of the intercarrier sound system. The fact is that today only two of the leading television manufacturers (*Du Mont* and *RCA Victor*) do not use intercarrier sound in any of their models.

Design engineers were also faced with the large screen trend. Whereas in 1949 the average television receiver employed a 12 inch picture tube, the 1950 models incorporate larger tube sizes with the average 16 inches.

This trend toward increased tube size brought with it a newly designed cathode-ray tube, rectangular in shape. As the year progressed, more and more manufacturers added rectangular designs, principally to cut down cabinet size. However, round tubes were still holding their own at the end of the year.

To maintain proper cost levels, manufacturers resorted to various low-cost, high-efficiency deflection systems. These systems allowed the manufacturer to cut down on the number of receiving tubes usually required to achieve the necessary deflection and voltage.

A mass television market stimulated the production of new and varied models. Television manufacturers in 1950 at least doubled the number of models and in some cases went so far as to triple their 1949 figure. The ingenuity exhibited in the design of television receivers, coupled with the efficiency of mass production, brought down the cost of the average television receiver approximately \$30.00 within one year. In 1949 the average television receiver cost \$193.00 In



A standard television receiver converted for color under the RCA color system. The conversion unit is shown at the rear. The set utilizes RCA's tri-color picture tube.

YEAR	SETS MADE	WHOLESALE VALUE
1946 (and before)	15,000	\$ 2,900,000
1947	196,955	55,000,000
1948	953,511	225,000,000
1949	2,896,676	560,000,000
1950 (estimate)	7,500,000	1,250,000,000

Television receiver production by years and approximate wholesale value of these sets.

1950 this figure was reduced to \$169.00. When you realize that the lower cost brought with it a larger picture tube, as well as many engineering advances, the triumph of 1950 television design can be seen in its proper perspective.

The pattern of expansion in television broadcasting has, of necessity, been far more restricted than receiver production. Whereas tremendous markets already existed for receivers, the telecasting phase of the business was

Stations and sets in the 63 television cities and their "primary" service areas (up to 40 miles). NBC reports show 9,169,300 video sets were in use as of November 1, 1950.

CITY	No. OF STATIONS	No. OF SETS	CITY	No. OF STATIONS	No. OF SETS
Albuquerque	1	5,400	Louisville	2	60,300
Ames	1	24,500	Memphis	1	60,200
Atlanta	2	66,700	Miami	1	40,000
Baltimore	3	240,000	Milwaukee	1	177,000
Binghamton	1	26,100	Minneapolis-St. Paul	2	163,000
Birmingham	2	28,700	Nashville	1	12,600
Bloomington	1	11,000	New Haven	1	110,000
Boston	2	580,000	New Orleans	1	41,100
Buffalo	1	149,000	New York	7	1,825,000
Charlotte	1	36,200	Norfolk	1	38,700
Chicago	4	710,000	Oklahoma City	1	54,600
Cincinnati	3	196,000	Omaha	2	42,000
Cleveland	3	349,000	Philadelphia	3	695,000
Columbus	3	104,000	Phoenix	1	21,000
Dallas	2	46,600	Pittsburgh	1	180,000
Davenport-Rock Island	2	28,000	Providence	1	95,600
Dayton	2	98,000	Richmond	1	47,400
Detroit	3	356,000	Rochester	1	56,200
Erie	1	35,000	Salt Lake City	2	31,500
Ft. Worth	1	36,000	San Antonio	2	32,200
Grand Rapids	1	65,400	San Diego	1	62,000
Greensboro	1	30,500	San Francisco	3	115,000
Houston	1	49,700	Schenectady	1	116,000
Huntington	1	27,500	Seattle	1	50,100
Indianapolis	1	84,000	St. Louis	1	207,000
Jacksonville	1	21,000	Syracuse	2	80,900
Johnstown	1	45,000	Toledo	1	57,000
Kalamazoo	1	27,500	Tulsa	1	48,200
Kansas City	1	73,600	Utica	1	27,900
Lancaster	1	68,500	Washington	4	189,000
Lansing	1	30,000	Wilmington	1	48,900
Los Angeles	7	735,000			

TOTAL OPERATING STATIONS (107) IN 63 MARKETS
TOTAL TV SETS: 9,169,300

considerably slowed down by the FCC freeze. Thus in 1950 only 9 stations were opened, bringing the total of stations operating to 107.

Undoubtedly television broadcasting made its greatest strides in 1950 in the field of network transmission. The *Bell System* coaxial line continued its geographic expansion by going as far south as Jacksonville and as far west as Omaha. Sixteen new communities were placed on the coaxial line to receive network shows, with six others added for private station-to-station relays. Today 48 communities can enjoy network television through coaxial and microwave relay links.

To provide increased network service, the New York to Chicago coaxial link was supplemented by a microwave

relay system. These facilities provide a total of six channels, four from New York to Chicago and two from Chicago to New York. Two of the westbound channels are carried via the cable and two via microwave relay. The eastbound channels are microwave.

The economic strides that television has made can best be emphasized by the fact that although only 107 stations are on the air, television revenues amount to almost 25% of the AM radio revenue from its more than 2200 stations. Network television sponsorship has already surpassed radio. Considering the high production cost one can well imagine the drawing power of television as a sales medium as evidenced by the enthusiastic support it has received from advertisers.

1950 can undoubtedly be considered television's year of achievement, for this was the year that television receiver sales went over the billion dollar mark and the size of the viewing audiences foretold the success of television broadcasting as a competitive advertising medium.

Service and Technicians

The ever-increasing television market brought with it serious service problems. Too many consumers were unaware of the complexities inherent in the reception and transmission of television. The technician was often blamed for poor picture quality in cases over which he had no control. The few instances where technicians were shown to be improperly trained the press hullabaloo was all out of proportion to the complaint. Soon the TV servicing problem was built up until its solution became a community witch-hunt. To supposedly protect themselves, many communities considered the passage of local ordinances governing television technicians. The Better Business Bureau made the public television servicing conscious by publishing a "primer" for television owners. The booklet critically evaluated reception difficulties and generally cleared the air for the individual television technician.

The business failure of large numbers of television service contractors provided the servicing field with its greatest headache. Although the fault, in most cases, was due to inefficient operation, the consumers involved rapped television service as a whole, not realizing that business failures were possible in any enterprise. However, a careful examination of the field of contractual servicing seems to indicate that too many organizations sold their service short. The crying need of such organizations was, and is, a sound understanding of cost analysis. Those companies that were operated efficiently proved that television servicing could be "big business."

Television's Future

The one thing that we can be certain of in considering the television picture for 1951 is that 1950 was a peak year for television receiver production—a distinction it is liable to hold for some time to come. As we get into 1951, the television industry will be faced with component and tube shortages unparalleled in commercial production. With basic materials such as cobalt and copper being stockpiled by the government, scarcity of these materials will, in turn, lead to higher prices. Most observers believe that 1951 production will approximate at the most half of what was achieved in 1950, with low price table models and consolettes making up the bulk of most manufacturers' lines. The field of television broadcasting will undoubtedly remain as of 1950, except for tying in a number of stations to

(Continued on page 104)

Call letters, location, and channel numbers for commercial TV stations now in operation.

CALL LETTERS	CITY & STATE	CHANNEL	CALL LETTERS	CITY & STATE	CHANNEL
WAFM-TV	ALABAMA			NEBRASKA	
WBRC-TV	Birmingham	13	KMTV	Omaha	3
	Birmingham	4	WOW-TV	Omaha	6
KPHO-TV	ARIZONA			NEW JERSEY	
	Phoenix	5	WATV	Newark	13
KECA-TV	CALIFORNIA			NEW MEXICO	
KFI-TV	Los Angeles	7	KOB-TV	Albuquerque	4
KLAC-TV	Los Angeles	9		NEW YORK	
KNBH	Los Angeles	13	WBNF-TV	Binghamton	12
KTLA	Los Angeles	4	WBEN-TV	Buffalo	4
KTSL	Los Angeles	5	WABD	New York City	2
KTTV	Los Angeles	2	WCBS-TV	New York City	7
KFMB-TV	San Diego	11	WJZ-TV	New York City	2
KGO-TV	San Francisco	8	WNBT	New York City	4
KPIX	San Francisco	7	WOR-TV	New York City	9
KRON-TV	San Francisco	5	WPIX	New York City	11
	CONNECTICUT		WHAM-TV	Rochester	6
WNHC-TV	New Haven	4	WRGB	Schenectady	4
	DELAWARE		WHEN	Syracuse	3
WDEL-TV	Wilmington	7	WSYR-TV	Syracuse	5
	DISTRICT OF COLUMBIA		WKTV	Utica	13
WMAL-TV	Washington	7		NORTH CAROLINA	
WNBW	Washington	4	WBTV	Charlotte	3
WOIC	Washington	9	WFMY-TV	Greensboro	2
WTTG	Washington	5		OHIO	
WMBR-TV	FLORIDA		WCPO-TV	Cincinnati	7
WTVJ	Jacksonville	4	WKRC-TV	Cincinnati	11
	Miami	4	WLW-T	Cincinnati	4
	GEORGIA		WEWS	Cleveland	5
WAGA-TV	Atlanta	5	WNBK	Cleveland	4
WSB-TV	Atlanta	8	WXEL	Cleveland	9
	ILLINOIS		WBNS-TV	Columbus	10
WBKB	Chicago	4	WLW-C	Columbus	3
WENR-TV	Chicago	7	WTVN	Columbus	6
WGN-TV	Chicago	9	WHIO-TV	Dayton	13
WNBQ	Chicago	5	WLW-D	Dayton	5
WBBF-TV	Rock Island	4	WSPD-TV	Toledo	13
	INDIANA			OKLAHOMA	
WTTV	Bloomington	10	WKY-TV	Oklahoma City	4
WFBM-TV	Indianapolis	6	KOTV	Tulsa	6
	IOWA			PENNSYLVANIA	
WOI-TV	Ames	4	WICU	Erie	12
WOC-TV	Davenport	5	WJAC-TV	Johnstown	13
WAVE-TV	Louisville	5	WGAL-TV	Lancaster	4
WHAS-TV	Louisville	9	WCAU-TV	Philadelphia	10
	LOUISIANA		WFIL-TV	Philadelphia	6
WDSU-TV	New Orleans	6	WPTZ	Philadelphia	3
	MARYLAND		WDTV	Pittsburgh	3
WAAM	Baltimore	13		RHODE ISLAND	
WBAL-TV	Baltimore	11	WJAR-TV	Providence	11
WMAR-TV	Baltimore	2		TENNESSEE	
	MASSACHUSETTS		WMCT	Memphis	4
WBZ-TV	Boston	4	WSM-TV	Nashville	4
WNAC-TV	Boston	7		TEXAS	
	MICHIGAN		WFAA-TV	Dallas	8
WJBK-TV	Detroit	2	KRLD-TV	Dallas	4
WJW-TV	Detroit	4	WBAP-TV	Fort Worth	5
WXYZ-TV	Detroit	7	KPRC-TV	Houston	2
WLAV-TV	Grand Rapids	7	KEYL	San Antonio	5
WKZO-TV	Kalamazoo	3	WOALT-TV	San Antonio	4
WJIM-TV	Lansing	6		UTAH	
	MINNESOTA		KDYL-TV	Salt Lake City	4
KSTP-TV	Minneapolis-St. Paul	5	KSL-TV	Salt Lake City	5
WTCN-TV	Minneapolis-St. Paul	4		VIRGINIA	
	MISSOURI		WTAR-TV	Norfolk	4
WDAF-TV	Kansas City	4	WTVR	Richmond	6
KSD-TV	St. Louis	5		WASHINGTON	
			KING-TV	Seattle	5
			WSAZ-TV	Huntington	5
			WISCONSIN		
			WTMJ-TV	Milwaukee	3

1950—TV Year
(Continued from page 34)

either the network coaxial or the microwave relay. Material shortages will make it practically impossible to construct new television stations even if FCC ends the freeze. However, commercial television should continue to flourish as a result of the exploitation of the new markets which will open up as the network expands.

Color Television

The FCC's decision late in 1950 to accept the *CBS* standard for color transmission has had very little effect on the industry as a whole. Although the initial reaction of the public was to hold off on the purchase of television receivers, this feeling was only short-lived and as of the end of the year receiver sales were normal. The future of color television is today a purely academic question. The conflict as to what system of color transmission will survive the test of time will undoubtedly continue in the coming year. No color system can be expected to achieve a "commercial" status within the foreseeable future. Manufacturers and broadcasters face too many difficulties in connection with existing black and white production and transmission to worry about color.

Servicing Business 1951

Considering that 1951 offers a ten million television set servicing market, the future of the replacement business should remain a bright one. The big question mark, however, is one of supply, that is, providing the lower level of distribution—the technician—can obtain an adequate supply of parts and tubes to complete his servicing job. In this period of component shortages manufacturers will have to determine for themselves whether new sets are to receive a greater priority than those sets already in the field. The manufacturer must remember that his name and reputation is at stake when a set in the field is left inoperative due to an inadequate supply of components or tubes. At a recent meeting, Ernest A. Marx, general manager of the *Du Mont* Receiver Division, said that his company would give a component and tube priority to those sets already in the field. It is his contention that manufacturers must keep faith with the customers that have already been sold. What manufacturers in general will do will determine to a great part the

state of the servicing business in 1951. The supplying of servicing organizations with needed parts and tubes will mean both an expanded servicing business and ever-operative television receivers, which in the final analysis is the most important factor in the success of television broadcasting.