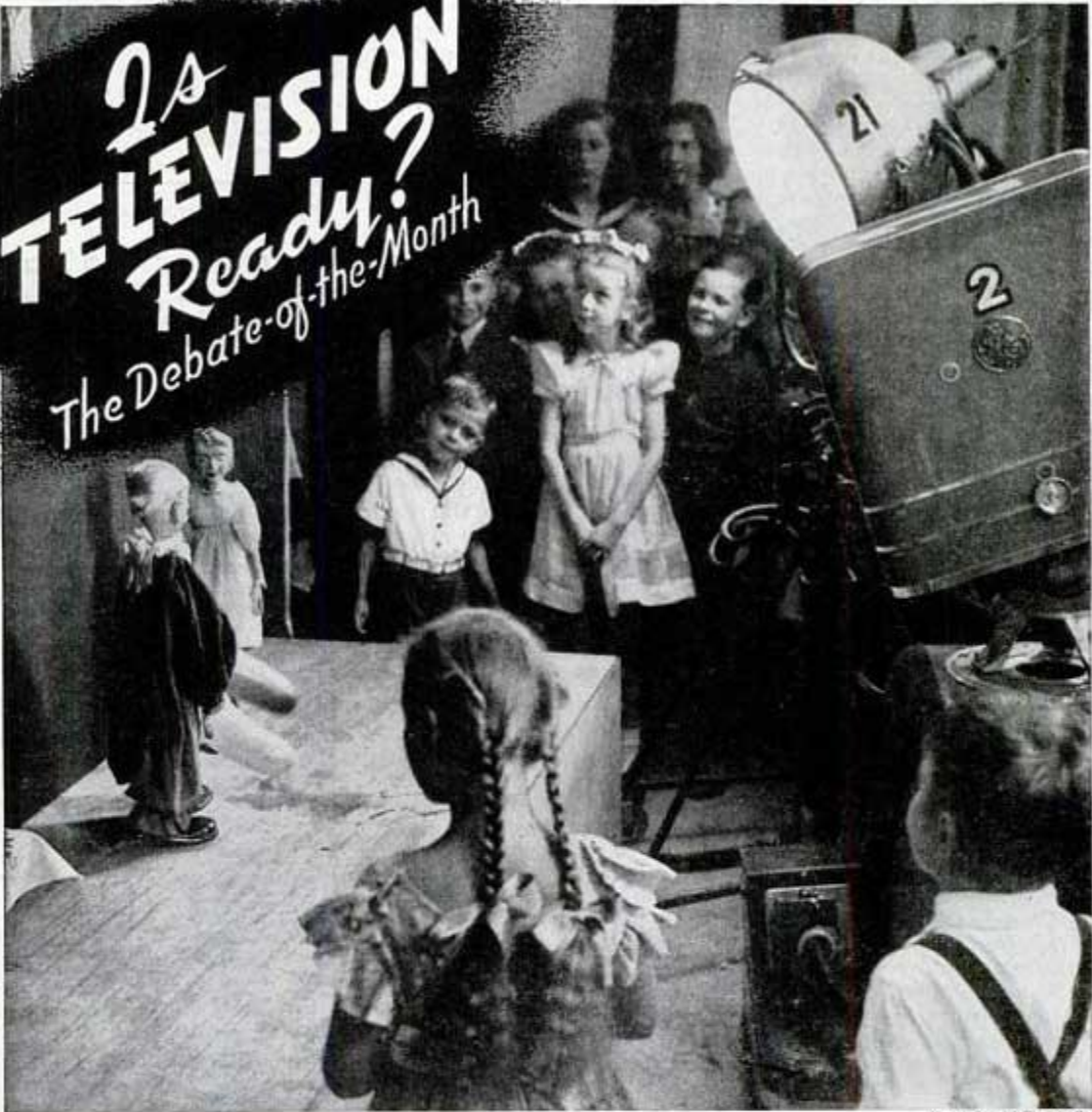


# 2<sup>d</sup> TELEVISION Ready? The Debate-of-the-Month



ANTICIPATION: These eager youngsters are watching a puppet show being televised at a WRGB party.

## YES!

Says Allen B. DuMont

**T**ELEVISION has travelled an amazing, gruelling distance since it first took form in the laboratories. Already its 525-line transmission gives it a degree of technical excellence far transcending that attained by any other invention of comparable importance before it was given to the public.

Today's broadcast television picture is sent by transmitters and seen on receivers built before the

war. They have stood up well, but they do not represent the most advanced stages of television available any more than the automobiles in use today incorporate the latest developments in transportation.

In the laboratory we have tested cameras, transmitters, lights, and receiving equipment which give pictures of subtle gradation even when modest amounts of light are used. They are better in quality than our finest 16-millimeter movies and very nearly as good as the 35-millimeters.

*This equipment now exists.* It operates in a portion of the radio spectrum we have explored and mastered. Some of it is withheld from the public for reasons of military security, lack of manpower or materials for production, and/or because—at this writing, at least—we are not certain that we can offer it to the public with any assurance that television will have tenancy of a fixed position on the dial long enough for consumers to secure full value from their investments in receivers.

This equipment has been labora-

tory tested. It is ready—ready for production when manufacturers have finished wartime jobs.

Technicians skilled in radar manufacture and operation will be released from war plants and the armed forces. Many tens of thousands of jobs will be needed by these workers. Economists and major manufacturers have termed television the next billion-dollar industry. They envision it employing factory workers, salespeople, entertainers, repair and maintenance workers, engineers, artists, producers of raw material, and myriad other main-line and tributary workers.

If the advocates of deferred television were to have their way, these workers would be unable to find jobs in television for an indefinite period of time. Whether or not they could find jobs elsewhere is questionable.

One reason given for restraining commercial development of television is that we are on the eve of revolutionary technical discoveries which would quickly outmode present equipment. It has been said, for example, that despite Nazi occupation of their country, French scientists had probed the mysteries of the radio spectrum above 300 megacycles for television. But investigation has proved the rumor to be unfounded.

We have no assurance that high-frequency television *ever* will be satisfactory. Experiments made point to difficulties for which no solutions are now in sight. In New York, for example, only 15 percent of the people between a transmitter



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and the horizon could be reached by a very high frequency signal of sufficient strength to get satisfactory reception. Engineers know no way to overcome the enfeebling of signals—a "shadow effect"—created by buildings, bridges, hills, and other obstacles.

No television transmitter has yet been built which will operate in the vast, unexplored portions of the radio spectrum. When such a

transmitter is built, it will still be necessary to seek out the impediments to clear signals and to combat them. New cameras and receivers will have to be designed and built, then be subjected to a gantlet of tests for quality, operational efficiency, and longevity in order to protect the public.

Even were it possible to create this equipment within a year or a very few years, our moral responsibility to consumers would require us to maintain it on an experimental basis until as fully tested and mastered as is our present most advanced equipment operating in the channels now assigned to television. Very probably such a process would require at least five to ten years.

Meanwhile we could have no commercialization of television. Years of programming experience and of bringing knowledge, cultural advantages, entertainment, and immediate news reports to substantial portions of the public would be irretrievably lost. Revenue which could be plowed back into extensive and expensive experimentation in electronic transmission would not be forthcoming from television for years. And the portion of the spectrum in which we *know* television can operate efficiently and successfully would be—in fact, has already been—placed in jeopardy of being lost to television.

Those of us who have watched television develop from an embryonic state have almost become conditioned to accepting scientific miracles as platitudes. But science is conservative. Science seeks checked, tested, verified, and corroborated facts, not just intelligent conjecture, before it pulls the switch that lets industry crescendo experiments into commercial enterprises.

For that reason, most television proponents believe it must develop commercially in essentially the channels now assigned to it. Meanwhile, all major organizations in television-equipment production would continue to explore the very high frequency waves in the hopes that it will not be too many years before parallel television broadcasting can be conducted in that roomier segment of the ether. Then, just as we are now witness-

sing the transition between amplitude modulation radios (the type most people now have in their homes) to the more tonally discriminating frequency-modulation (F-M) radios, we can gradually taper off from the current television channels to the very high frequency channels if the numerous obstacles to this use should be overcome. The tapering period can be extended sufficiently so that the public derives a fair amount of value from its initial television-receiver purchases before the easy, low-slope transition takes place.

This will entail considerable sacrifice on the part of the manufacturers. Their already gigantic investments in television will be materially increased and then, eventually, written off the books as very high frequency television is perfected. Manufacturers, however, frankly question the optimistic estimates about the speed and engineering ease with which the unexplored channels can be developed. They feel the exploration will require many years.

Postwar television, as it is conceived by those seeking an early "green light" is far from identical with prewar television. The number of "dots" or picture elements that go on the screen has been used as the major criterion of picture quality. Yet, at the angle that the eye subtends in viewing a television screen in the home, postwar television images *which have already been thoroughly tested* will be of much finer gradation than were prewar ones. Better transmitters and better receivers have been perfected. The resultant degree of improvement which will accrue to television immediately upon resumption of production will be equivalent to images employing approximately twice as many picture elements, as far as the human eye viewing the screen from a normal distance is concerned.

Why, then, wait? Certainly not for color television. What would have happened if we had postponed development of the whole moving-picture industry until color arrived?

Today we have quality pictures; eager sponsors; a priceless, pre-trained labor potential; a portion

of the spectrum that is television's by prior claim and exhaustive exploration; large-screen receivers; a long list of potential broadcasters waiting to build stations; and all the engineering and programming knowledge necessary to give television a flying start.

Television is ready!

# no!

Says Joseph H. Ream

**T**O ANSWER the question "Is television ready?" I think I should begin by asking, "Ready for what?"

Television is already here and, we hope, here to stay. Television has been with us for years; longer, I think than most people realize. Before the war, and



REAM . . . Lawyer, Vice-president and secretary in charge of television of the Columbia Broadcasting System. Graduate, "U" of Kansas and Yale. Lives on his farm in Millstone, N. J.

in cities where television stations were located, it was possible to buy a television set, have it installed in a home—sometimes as far as 30 or 40 miles from the transmitter—and get television reception.

Although the war put a stop to the manufacture and sale of television sets, visual programs are still being broadcast for the benefit of prewar set owners. In New York, for example, one of three television stations is on the air each evening, a total for the three stations of about 14 hours each week.

Time devoted to television broadcasting will undoubtedly be increased after the war. After the war, also, manufacturers plan to put new sets on the market. They will be better sets than any previously offered, though how much better is still not known.

To the extent of these facts, television may be said to be "ready."

Why, then, am I taking the negative side of this debate? Because I very much doubt that the public is ready for the kind of television now ready for it. Because, at its present level of quality, I very much doubt that television can develop into a prosperous new in-

dustry as rapidly as it should.

The Columbia Broadcasting System publicly announced, last April, a postwar television policy. It stated a conviction, based on the highest technical authority, that television pictures could be made "twice as good" as they have ever been if the industry would take full advantage of the discoveries of wartime electronic research. It pointed out that this vastly improved quality could be attained only by moving television out of its present narrow-band channels of transmission, in an already overcrowded portion of the radio spectrum, into much wider channels in the open spaces of the higher frequencies. It warned that television's growth would be retarded, if not permanently stunted, by delay in moving toward higher standards.

**I**N THE evolution of most products, improvement results in gradual obsolescence of the products that are improved. A 1939 automobile will still run and give its owner transportation, even after the "cars of tomorrow" are here. When television moves into the ultrahigh frequencies, however, *it will instantly make all existing equipment completely useless.*

A set designed to receive the prewar standard of low-definition television could not receive the improved pictures, or any pictures at all under the new standards. Today such a change would affect only 7,000 set owners in the United States, and most of these owners would, under normal conditions, already be in the market for replacements.

Suppose that sets built for prewar standards of transmission are put on the market again when peace returns, and that a million of them are sold before the new television is offered to the public. This would represent a public investment of 200 million dollars. The overnight sacrifice of such an investment cannot be contemplated lightly.

Television in America, like radio, must eventually pay its own way as a productive advertising medium. This requires, of course, widespread set ownership in order to deliver the "circulation." With that eventuality in mind, broadcasters are prepared to spend mil-

lions on programming, as their contribution toward the development of a medium they will someday sell. But their resources are not limitless, and an audience that remained too small to interest advertisers would ultimately, of economic necessity, "die on the vine."

There was strong evidence, before the war shut off sales entirely, that television was still not good enough to interest a mass audience. In the last six months that sets were available, sales were at a lower rate than in the six months preceding, and at a much lower rate than had been estimated. A total of only 7,000 were sold in the United States, for example, and a large proportion of these found their way into the homes of technicians, entertainers, and other people whose business was connected with broadcasting.

CBS believes that, in its present narrow-band widths and low-definition pictures, television may never be good enough to attract—and hold—the interest of a large mass audience. The six-megacycle band, to which it is now assigned in the United States, places a ceiling—and a relatively low ceiling—on the quality of pictures which can be transmitted and received, no matter how good a job the engineers and technicians do. The clarity and detail of fluorescent television, and the enlarged pictures in full color—not just black and white, as at present—which this increased definition permits, can only be attained by moving television "upstairs" in the radio spectrum.

Transmitters for wide-band television (in frequencies above 300 megacycles) are on the way. Orders placed by CBS for them with the General Electric Company and the Federal Telephone and Radio Corporation have been accepted and installation of one transmitter of this type is expected within a year. An application to the Federal Communications Commission for a license to construct a high-frequency station in New York has been granted, and four more applications—for Boston, Chicago, Los Angeles, and St. Louis—are on file.

At the time of the original CBS policy announcement, a group of communications experts was at work in Washington on the alloca-

tion of postwar radio frequencies in the United States. This group, known as the Interdepartmental Radio Advisory Committee, included representatives of the State, War, and Navy departments and the Federal Communications Commission. Its formal report, made last August, proposed even more radical improvements in postwar television than CBS had recommended. But they were exactly the same kind of improvements. For example:

1. Where CBS had recommended television channels 14 to 16 megacycles wide (as opposed to the present six-megacycle channels), the IRAC proposed channels 16 megacycles wide, or perhaps as wide as 20 megacycles.

2. Where CBS had recommended moving television to frequencies above 200 megacycles (it's below 100 megacycles now), the IRAC proposed that the new television channels be assigned between 450 and 1,000 megacycles.

3. Where CBS had recommended increasing the number as well as the width of television's present 18 narrow channels, the IRAC proposed 31 new wide-band channels in the high frequencies.

This report bears the weight of both technical and governmental authority. But there has been other evidence, and in increasing quantity, that the kind of television CBS advocated will, in fact, be the kind of television that the people will someday enjoy. And sooner, perhaps, than anyone has dared hope.

**M**ANUFACTURERS other than General Electric and Federal are confident of their ability to produce practical high-frequency transmitters. Several are working on new receiving equipment. One of these, the Zenith Radio Corporation, is well along on the development of a set capable of receiving the improved television not only in black and white, but in full color as well.

Television, technically as good as the best home movies, is inevitable. If manufacturers wish to sell sets based on prewar standards, and the public wishes to buy them, there is no reason why they shouldn't do it—*so long as the public is fully informed of the television that will, probably at a very early date, supplant anything we have seen.* When that day comes, and not until then, television will be ready to move forward as another major industry.