

NAB LIBRARY

FM

FROM:
National Association of Broadcasters
News Bureau
NAB Executives War Conference
Room 402, Palmer House
Chicago, Ill.

TO BE RELEASED FRIDAY AM- SEPT. 1-1944

POSTWAR BROADCASTING AND TELEVISION

Address by Paul Chamberlain,
General Electric Company
Thursday afternoon, August 31,
1944- NAB EXECUTIVES WAR CONFERENCE-
Chicago, Illinois.
Palmer House

LADIES AND GENTLEMEN:

Within a short time following the War FM Stations will be built in most cities now having AM Stations. FM is also expected to prove economically sound in cities which have not previously supported a Broadcasting Station. FM is the solution to the problems of fading-interference - and static that have hampered low power AM stations. FM stations can build an audience and deliver it to advertisers day in and day out regardless of weather or other conditions that frequently affect AM reception. To the listener - FM means virtually static-and-interference-free reception plus music that far surpasses any reproduction by conventional radio.

Many AM Stations will modernize and others will switch to FM. New Post-war transmitters -- which will improve transmission and materially cut operating costs -- will make modernization attractive for many medium and high-power AM Stations. The expansion of FM will bring a reduction in the number of AM stations as low-power and some medium-power stations change to FM. Possibly in the future- 500 - kilowatt and even 1000- kilowatt AM stations can be operated to provide long-range coverage. These trends will result in improved reception and an increase in the value of radio as an advertising medium.

The trend of FM is established. Fifty-three Commercial FM transmitters now cover a population of approximately 50,000,000. Over half a million FM receivers are in use. A conservative estimate is that 500 FM Stations will be in operation five years after the war and we estimate that AM Stations will drop from over 900 to about 750 by that time.

Why should you bother about FM? What does it offer? There are several good reasons aside from the advantages to the listeners. Further expansion of the AM system is impractical and since all of the United States does not have satisfactory service - FM provides the only means of improvement and expansion. Adding AM stations would reduce the coverage of existing stations and add confusion to that already prevalent. The AM system has already been expanded to the point of diminishing returns.

FM is of particular advantage to the lower power stations. As an example -- based on average ground conductivity a 1400 KC 250-watt AM station with a 331-ft. vertical antenna has a daytime range of 13 miles and a nighttime range of 4.8 miles. A 250-watt FM transmitter with an antenna of the same height will deliver consistent day and night coverage over a radius of 29 miles and will neither cause interference with other stations or be affected by interference from other stations.

Most broadcasters could do a better job with FM than they are now doing with AM - especially those on the crowded regional and local channels. In such cases -- FM offers better coverage of the same area at less cost - or better coverage of more area at the same cost.

The thought of establishing an FM station brings up questions...such as the cost of equipment - best station location - network facilities - receivers and others.

Let's touch on costs first. FM transmitters before the war were slightly higher than AM transmitters for ratings up through 3-kilowatts. Above that - FM transmitters were priced lower than corresponding AM transmitters. The prices of low-power FM transmitters may be more in line with AM transmitters post-war.

Let us consider location for a moment. It is logical to locate the studio for operating convenience. It could well be placed in a downtown location in the average city. The transmitter should be where it will have maximum coverage -- a nearby hilltop or mountaintop or the top of a tall building. The gap between studio and transmitter could be bridged by wire lines. However - in many locations it is more economical and satisfactory to use a high-frequency low-power radio link. Such links are giving extremely satisfactory results up to 110 miles.

What about networks for FM? Networks probably will operate by means of wire lines - coaxial lines - and point-to-point high frequency radio relay. Recent announcements by A. T. and T. and I. B. M. point to the establishment of adequate network facilities.

Now a brief discussion of the FCC Allocation Plan for FM stations. FMIBI and RTPB are studying the present plan with the objective of recommending certain changes. Briefly - the contemplated changes are -

- 1 - An increase in the present band width now allocated for FM broadcasting.
- 2 - A complete elimination of classes of stations - or at least a reduction in the number of classes.
- 3 - A separation of the present rigid coupling between trading areas and service areas of the FM stations.

- 4 - A modification of the present rules to permit FM applicants to start with less power than their ultimate plans call for - or in other words - not require all FM broadcasters in a given area to install facilities for the same coverage.

If these changes are put into effect - the establishment of FM stations will be governed mostly by economics and the spheres of influence which the applicants can justify in the eyes of the commission.

Let's consider receivers for a moment. In 1938 in close collaboration with Major Armstrong - General Electric engineers developed and built twenty-five FM receivers which were used to prove the superior qualities of FM reception. These were the first FM receivers. In each of the following years before the war we produced FM receivers at progressively lower costs.

As to our future plans FM will dominate our product design and merchandising and advertising program. Tentative plans call for FM receivers in all but the lower priced brackets. Omitting the AC/DC sets from the picture we expect our post-war line to consist of FM sets to the extent of 80 to 90 per cent.

We believe the industry will produce 5 million FM receivers in the first full year of unrestricted post-war production and in the following four or five years this total will grow to about twenty millions.

The future of FM depends on maintaining high standards of performance. This does not mean that FM will be confined to the higher priced sets. It should be possible to produce AM-FM receivers with excellent performance to retail at \$60.00 based on pre-war prices. To further reduce prices and maintain the high levels of performance which FM receivers must have is not going to be easy -- but it can and will be done.

We will continue to back up our confidence in FM in our advertising. For eight months our consumer magazine advertising and many of the commercial messages on our network news program -- "The World Today" have been devoted to FM.

Today - General Electric is building more military equipment than any other home radio manufacturer.

Today - General Electric is running more radio advertising than any other home radio manufacturer.

But - and this is the important fact - this leadership advertising program is not being used to talk about our leadership position in military radio. It is being used to pre-sell the public on buying FM sets when receivers are available.

We said earlier that many AM stations will modernize their facilities and possibly some would increase power. To illustrate

what we mean by modernization the old WGY transmitter could be replaced by a modern AM transmitter and save approximately \$600 each month on the power bill alone. If superpower in the order of 500 to 1000 kilowatts is permitted for AM stations General Electric's facilities for development and manufacture of high-power tubes and transmitters will be utilized to the fullest extent. Our experience in the manufacture of large transmitting apparatus is extensive. General Electric designed and manufactured practically all of the highest powered transmitters for the armed forces and - so far- all of the 100-kilowatt AM international transmitters for OWI.

It seems reasonable that FM will eventually supplant all local - most regional - and some high power stations. The present AM band would be cleared up - making more clear channels available for high-power and possibly superpower AM stations. Such a transition would be generally beneficial as it would give the public FM reception plus better AM reception.

Let us turn to television. Nine commercial television transmitters today serve an area in which twenty-two million people live. Interest in television has grown rapidly in recent months and many forward-thinking broadcasters - department stores - newspapers and merchandising organizations are making plans to enter the field of television broadcasting. Representatives of these industries are coming to Schenectady to see the facilities at WRGB. The 40-KW visual transmitter is the world's most powerful. The studio is one of the best equipped - with mobile cameras - motion picture projectors - control and monitoring equipment and picture and sound studio-to-transmitter radio relay transmitters.

WRGB has been in operation four and a half years with regularly scheduled live-talent and film programs. We have broadcast more than 700 programs in 31 classifications from wrestling matches to grand opera. Each program is checked for audience reaction and the surveys are available to everyone interested in television.

There will be two major applications for television after the war. The first is industrial television - where pictures and sound will be carried by wires or radio from one point to others for various private commercial uses. The second is broadcast television which adds a new dimension to home entertainment and provides one of the most powerful mass advertising media ever developed.

Let us consider the probable growth of broadcast television.

One major economic problem facing television is reaching larger audiences -- thus increasing the circulation and reducing the programming cost-per-listener.

The first step involves the construction of master television stations in larger cities. These stations would have studio facilities and staffs capable of originating programs such as musical comedies and plays.

Radio became big business when stations were linked into networks. In 1924 WGY - the General Electric station in Schenectady - established one of the first radio networks. A program produced by any station on the network could be broadcast to a larger audience, thus increasing the program's circulation. Realizing that television needed similar facilities - General Electric in 1939 set up a radio relay station which allowed WRGB in Schenectady to broadcast television programs originating in New York City. Four years of operation of this relay -- the pioneer television network in the world -- have proven the feasibility of such network operations. There is much discussion about the television network of the future and whether it will carry programs from station-to-station by coaxial cable or high frequency radio waves. Future television networks may combine radio relay equipment and coaxial cable. We believe that transmitting a program from point to point by ultra-high frequency radio beams has certain advantages.

One of the first ultra-high frequency radio relay circuits will be installed between Schenectady and New York City by the International Business Machines Corporation - subject to FCC approval - - just as soon as conditions permit. This system will be a multi-channel two-way circuit operating above 2000 MC. The apparatus will be designed and built by General Electric. A second radio relay will connect New York City with Washington, D. C. and intermediate points and extension to other cities is contemplated. Such facilities will make programs from master television stations available to other stations on the network. There are about 80 television stations scheduled for construction based upon licenses granted or applied for. These stations will serve areas with a population of more than 30 million.

We anticipate that within five years after the war there will be at least one hundred master television stations in the country with 67,000,000 people in their service areas. Smaller areas which can be covered by satellite stations and network television stations are not included in this figure.

We fully realize the necessity of providing the public with high quality television receivers at popular prices. And when we say "popular prices" we do not mean four - five - or six hundred dollar merchandise exclusively.

Lower cost receivers will undoubtedly be of the direct-view type. Our line will consist of both direct view and projection models. The direct-view models employing - for example - a 12-inch tube will be relatively inexpensive. We anticipate such a design because it will insure excellent picture contrast and definition. If a larger picture were provided in the lower price receivers we would have to sacrifice picture quality to some extent over that obtainable with a direct-view tube.

The higher priced television sets will be designed with a projection tube that will provide an excellent picture up to 18 by 24 inches.

Satisfactory projection type television sets are inherently more expensive to produce than direct-view types.

We plan to make new television receivers available as soon as government authorization allows us to do so.

In conclusion - we do not pretend to know all the answers involved in the business of operating television stations - tying them together as networks - and making them pay. That is a job for you -- and we are sure that you can and will do that job.

The success of television will require the closest teamwork between the broadcaster - the show business - the news business - the advertising business - the business of manufacturing television broadcast equipment and receivers - and the business of retail sales and service of receivers.

General Electric believes that the strongest contribution it can make to this teamwork is television research and engineering - - and the manufacture of high-quality television transmitters and receivers.

G. E. contributes the facilities of WRGB as a proving-ground to all industries that are interested in television. We are working with some of the most progressive elements in these businesses. The continuing co-operation of each one in this common effort will advance greatly the coming of national television - and enable it to grow rapidly into the great new industry that will give employment to hundreds of thousands and provide a new world of entertainment to millions.