

## Allocation Hearing Before Federal Communications Commission Nears Completion

A number of witnesses appeared before the Federal Communications Commission today at the allocation hearing which was resumed after a recess since last Friday. Also there was rebuttal testimony by the clear channel group.

Members of the Commission who are sitting in at the hearing indicated at adjournment today that they believed the hearings would be completed tomorrow evening or at the very latest Wednesday.

Among those testifying today were: W. J. Pape, Radio Station W1XBS, Waterbury, Connecticut; James C. McNary, on behalf of W1XBS and WTIC, Hartford, Connecticut; Ben S. Fisher, speaking on behalf of a number of west coast stations; George O. Sutton, on behalf of a group of regional, local, day-time and limited time stations and also a presentation for the National Independent Broadcasters and Louis G. Caldwell, rebuttal testimony on behalf of the clear channel group.

### W. J. Pape

W. J. Pape in his statement in connection with W1XBS said that that station had found that the territory in which a satisfactory signal can be delivered on its frequency of 1530 kilocycles is very restricted.

Mr. Pape said:

I am testifying as president and treasurer of the company which owns and operates Station W1XBS of Waterbury and New Haven, Connecticut, as to our experience of nearly two years broadcasting on the 1500 to 1600 band.

Many doubts were expressed at the outset in competent circles as to whether inherent difficulties attending these frequencies would not prevent their successful operation. A preliminary survey conducted prior to the opening of the station indicated to us that approximately 70 per cent of the receivers in our immediate territory were capable of receiving 1530 kilocycles. A detailed report covering this survey is on file with the Federal Communications Commission. We recognized in advance the disadvantages of the commercial use of this band due to this receiving set condition.

Soon after W1XBS opened it became apparent that the call letters had commercial disadvantages because numerous advertisers questioned the commercial value of an experimental station as compared with a regular broadcast station.

The expected difficulty with receiving sets capable of dialing 1530 were found to actually exist shortly after the station opened. Being owned and operated by newspapers, W1XBS had publicity facilities which were used to advantage. Programs being presented were exploited generously and a desire created to listen to these programs. The fact that receiving sets not capable of getting W1XBS could be inexpensively adjusted was also publicized and the co-operation of local radio repair men obtained to make these adjustments. The result of this campaign was very clearly indicated in a second survey conducted one year after the station opened when approximately 93 per cent of the receiving sets were found capable of dialing W1XBS at that time. This survey is also on file with the Federal Communications Commission. This condition has been improving gradually ever since because of purchases of new receiving equipment.

By correcting the receiving set condition as outlined and by constant newspaper publicity on the programs presented, the disadvantages of experimental call letters have been partially reduced but we still feel that regular call letters are essential to the successful commercial operation on the 1500 to 1600 band.

### Signal Restricted

We have found that the territory in which a satisfactory signal can be delivered on this frequency is very restricted. We believe that if greater coverage were allowed either through the use of more power or synchronization, greater use of the 1500 to 1600 band would be made. Our engineer will present data showing the feasibility of better coverage on these frequencies.

An excellent indication of the improvement of 1530 kilocycles for commercial broadcasting is evident in a comparison of expense and income figures now with those of the first year of operation. During the first year, net sales represented 54 per cent of our net operating expense. For the six months ending August 31st of this year, our net sales represent 79 per cent of our net operating expense. It is understood, of course, that the construction and operating cost of our high fidelity station has been greater than that of the average radio station due to the high standards maintained.

When I last appeared before this Commission, it was in the capacity of an applicant requesting the Commission to open these frequencies for use by experimental broadcasting stations. At that time I committed my company to rather heavy expenditures of money in order to carry on certain experimental work with the hope of making some developments which would prove beneficial to the Art. What real technical developments have resulted is a question for our engineers to discuss. I can say, however, that we have carried out every promise and have furnished this money willingly in the hope that we could justify the use of these frequencies. From my limited knowledge of the various phases of the business, I believe we have justified the use of these frequencies.

In conclusion, I believe, as a business man, that we have overcome most of the difficulties during the past two years and have reached the point of the future profitable use of 1530 kilocycles as a regular commercial broadcasting station provided the coverage problem which will be discussed by our engineer can be satisfactorily adjusted. I believe we have reached the era of commercial recognition and can be self-supporting if the difficulties outlined are removed.

Under cross examination Mr. Pape said that his station had found that following its establishment the radio set sales in the immediate vicinity increased considerably. Questioned regarding station profits he said that his station is not yet operating on a net profit but it hopes to be soon. In this connection also he reported that no depreciation has been marked off up to this time.

### J. C. McNary

In his engineering testimony regarding this station (W1XBS), Mr. McNary said:

I shall confine this testimony to comment on the usefulness of the frequencies between 1500 and 1600 kilocycles.

A number of exhibits have been prepared for the record showing the power required to transmit 10 millivolts, 2 millivolts and ½ millivolt to various distances for the frequency range from 1200 kilocycles to 1600 kilocycles and for two values of soil conductivity, namely,  $10^{-13}$  EMU and  $2 \times 10^{-14}$  EMU.

As the exhibits speak for themselves there is little need for detailed comment other than to point out that in each of the cases examined the coverage obtainable on 1600 kilocycles usually exceeds 70 per cent in radius of that obtained for the same power on a frequency of 1200 kilocycles. The rather obvious deduction is the fact that the frequencies from 1500 kilocycles to 1600 kilocycles are definitely useful for broadcast purposes even though



their transmission efficiency is somewhat reduced. For example, a power of 5 kilowatts will transmit  $\frac{1}{2}$  millivolt on 1600 kilocycles to a distance of 50 miles when the soil conductivity is  $10^{-13}$  EMU and to a distance of 22 miles when the soil conductivity is  $2 \times 10^{-14}$  EMU.

As a matter of interest an additional exhibit is presented to show the comparison for areas within the two millivolt per meter contours for a 1 kilowatt station operating on 1600 kilocycles and three 250 watt synchronous transmitters operating on the same frequency. This exhibit shows that the three synchronized transmitters may be used to cover about the same number of square miles as a single transmitter having a higher power. The area covered differs in shape from a circular pattern, from which it may be deduced that synchronous transmitters may be useful for distorting coverage areas so as to include populated districts which may not be symmetrically placed with respect to a central point at which the transmitter is located.

In connection with the synchronized system it is suggested that research is desirable to determine the nature of the sky wave interference at night produced by two or more synchronized transmitters.

Directional antennas also furnish a means for varying coverage areas and for control of interference.

### George O. Sutton

George O. Sutton testifying today in behalf of a group of regional, local, day-time and limited time stations showed the importance of giving proper consideration to the social and economic needs of the various types of areas requiring radio service in future allocations. He also indicated the basic principles on which the allocation of broadcasting facilities should be made, in his opinion, to conform more closely to the social and economic needs for radio service than are now possible.

Mr. Sutton said:

My name is George O. Sutton, I am making this presentation in behalf of a group of regional, local, limited time and daytime stations, which I represent. It is my hope that the suggestions herein contained will prove helpful to the Commission, the stations and other interested parties.

It is my purpose to present for the consideration of the Commission of various problems which are now confronting many regional and local stations and which prevent them from rendering the service to which their listeners are entitled. We wish to further show the need for a revision of the policy and procedure of the Commission in the allocation of station frequencies and I will endeavor to present a number of suggestions which I feel will prove useful in bringing about a better balance between the various kinds of services now offered by broadcasting stations.

Specifically I desire to develop the following points:

(1) To show the fallacies on which the original allocation of facilities was based in 1928, which allocation has not been changed substantially by regulation since that time.

(2) To show the importance of giving proper consideration to the social and economic needs of the various types of areas requiring radio service in all future allocations.

(3) To indicate basic principles upon which the allocation of broadcasting facilities may be made to conform more closely to social and economic needs for radio service than now possible.

In making this presentation there are several things which I most emphatically propose not to do. We shall not attempt to set forth any great mass of statistical data on economic and social aspects of broadcasting. The majority of pertinent information of this type necessary to a consideration of the issues here involved already has been presented. Therefore, we shall confine our own discussion to that of broad fundamental principles.

### No Specific Recommendations

Neither shall I attempt to set forth any detailed and specific recommendations as to regulations. These can be the result only of minute study of issues, and problems. Rather I shall confine myself to setting forth the principles upon which such specific regulations should be heard.

Finally I shall not attempt to present any comprehensive and categorical case built upon the extension of a single theory to its logical conclusions. A principle or theory is merely a guide post. It is not the entire road. What can be produced in the test tube can be manufactured commercially and made available to

society generally only if the theory underlying its creation can be adapted to the requirements of modern mass production technique. The perfect principle or theory—that is, perfect to the degree to which our perfect minds have mastered the truth—soon becomes imperfect when an attempt is made to apply it rigidly to the fluctuating conditions of life and activity here on earth. For this reason I shall approach the entire problem of future allocation from a purely practical viewpoint, applying the pragmatic test of “will it work” and attempting to find, if not the perfect theory, at least the intelligent compromise which will enable all classes of service to be improved progressively with the maximum net gain to the American listeners.

In making this presentation, I do not wish to enter into any long recital of allocation history. Yet the future can only be constructed out of the mistakes and accomplishments of the past. Their heritage rests alike upon the present and the future, and unless we understand what has transpired in the years which have gone, we cannot appreciate the limitations or the potentialities of the years to come. What can be done, and more important, what must be done in broadcasting today, is definitely conditioned by the accomplishments and the shortcomings of the allocation of 1928.

### Only One Angle Presented

It is all the more important that you have this clearly in mind because, thus far during the course of these hearings, but one angle of this allocation, favorable to one class of station, has been presented. It shall be my purpose to complete the picture.

One additional comment: In dealing with a cold recital of what transpired and in deducing the results which emanated therefrom I do not wish to seem to criticize regulatory bodies. The task they faced was an almost impossible one, and, when all factors are considered, it is sometimes surprising that so much was accomplished. But this does not alter the fact that the solution, no matter how much better than the preceding situation, was not a perfect one.

In order to understand the defects of the present assignments as they developed out of the allocation of 1928, it is necessary first to examine the manner in which that allocation came about.

Several salient points are evident in this respect:

1. The Commission had before it in 1928 the best engineering principles then available. This, however, does not offset the fact that other principles, of equal importance, have been developed since then. Neither does it offset the fact that practically nothing was known of either the social or economic aspects of broadcasting at that time.

2. When the allocation of 1928 was set up the fatal mistake was made of attempting to apply the known engineering principles of that period in such a manner that they would be completely suitable to all allocations in the future.

That this has failed in application is evidenced by the fact that these hearings are being held at all.

Concerning this point I wish to make an additional observation: Radio is still a developing industry. Ultra-high frequency transmission, television and facsimile broadcasting are but a few of the improvements which hover on the threshold of the future. Until such a time as the social, technical and economic aspects of radio reach a point of stabilization, it will be impossible to set up rigid regulations which will suffice for all time. Unless radio differs materially from other fields of science and art, such stabilization will never occur. Consequently the rigidity of the past must be supplanted by flexibility in the future.

### Davis Amendment

3. The Davis Amendment, as interpreted by the Commission, required that allocation of frequencies be made on the basis of absolute mathematical equality between zones. This was an important factor contributing to the rigidity of the present broadcasting structure.

4. Since the emphasis was placed upon engineering considerations in the 1928 allocation, with little or no regard for the social and economic factors, the needs of radio listeners in the areas in which they resided were assumed to conform to idealistic engineering theory rather than having engineering theory, as far as it was practical, adapt itself to listener requirements. In other words, the entire emphasis was placed upon the limitation of channels then existing and too little thought was given either to the needs which these channels actually should be made to fulfill, or to the fact that in any field of science, where limitations exist, means are usually found for offsetting them at least to some measure.



At this point I wish to state the following principle: Regardless of what may be said by those seemingly unaware of the basic significance of economic and social factors in the consideration of such important problems as the allocation of broadcasting frequencies, unless there is proper balance between the service functions of radio and sound engineering, we cannot hope to develop a basis of allocation which will be fair and equitable to all groups requiring radio service.

Let me show you what was the result of the 1928 allocation. The first and most important result was the setting up of a rigid and inflexible classification of channels, with insufficient and imperfect consideration of the listener requirements of the various areas which the stations operating on these different classes of channels were supposed to serve.

Four classes of channels were established: clear channels, regional channels, high powered regional channels and local channels. Of these four, it was the clear channels which dominated the entire allocation plan. It is therefore, highly important to see how they came into being and how 40 of the 90 available frequencies were reserved for their use. It also is important to note the results which emanated from this policy.

### Clear Channel Establishment

Clear channels were established in this country to meet the peculiar needs of our expanding broadcasting structure. The number of high power stations was growing very rapidly and was beginning to exceed the limited number of frequencies which were available. The fact that rural areas and outlying sections of metropolitan centers, which due to high tolerances and resulting interferences, were unable to secure good reception from stations on crowded frequencies, was advanced by the proponents of the clear channel theory as an argument for devoting each of a large number of frequencies to the exclusive use of a single station.

The direct quotation of the main testimony for the allocation of stations to clear channels in 1928 is as follows:

"If one is going to set up a reasonable approximation to an ideal broadcasting service, that is to say, one in which all the stations will be given either their full service range for the distribution of their signals or at least a fairly substantial part of their service range, then on each channel in the entire United States there must be no more than one 5,000 watt station and no more than one 1,000 watt station; that is to say, if a 1,000 watt station is put upon a single frequency, there must be no other 1,000 watt station on that channel, if the first one is to have undisturbed use of its service range or if even a substantial part of its service range is to be free for rural listening."

"I cannot emphasize too strongly the desirability of using each channel for the highest power that cross talk limitations will permit, with the geographical separation needed, which I would put at a minimum of 5,000 watts per channel, with proper geographical separation, so as to develop the national transmission, the inter-state transmission, rather than the purely community or local services."

### Psychology of Period

The force of this argument was speciously augmented by the prevailing psychology of the period. This was a psychology which was dominated by curiosity rather than by any conception of service as it is now understood. It was a greater accomplishment and more important to the listener to secure an execrable program from Chicago or Denver, than it was to receive regularly the best symphony orchestra from a nearby eastern community. So long as the station call letters could be identified without too great use of the imagination all was well. It was no wonder that distant listening was emphasized to the exclusion of all else and that sky wave reception in points as distant as Australia was spoken of as possessing real significance. You may recall, probably with some amusement, that silent nights were maintained by most stations so that listeners in their immediate area might be permitted to fish for the signals of more distant stations located on the same or adjoining frequencies.

It was advocated by many engineers in 1928 that each of the 90 frequencies should be reserved for one high powered station and that in this manner the best national service could be secured. The desirability of localized service of any type was not even perceived. Smaller stations were looked upon as a necessary political evil rather than a social and economic asset and actual necessity.

However, the complete adherence to such a theory would have eliminated the great majority of existing stations. This met with

such violent and deep-seated opposition that it was impractical to develop a completely clear channel service. As a result, more by chance than by design, localized service of present so-called regional and local stations were preserved. It should be noted that there were a few voices crying in the wilderness. A small minority believed that twenty channels or even less would be sufficient to meet the needs for service over extended territories, but they were lost in the general stampede for distant listening.

There were certain practical and legal situations that favored the establishment of such a large number of clear channels. High power stations had developed in two principal areas: The Middle Atlantic and North Central States. The Davis Amendment further complicated the situation by requiring that facilities be equalized as between geographically and socially unequal zones. Therefore, since it was impractical to delete or to reduce the power of the numerous large stations in existence and since engineers deemed it impractical to duplicate assignments of high power stations on the same channel—in order to comply with the equality clauses of the Davis Amendment, it was decided to raise the power of numerous stations in other sections of the country and allocate clear channels to their exclusive use.

The ownership of important stations by large capital groups also increased this pressure for clear channels stations.

### First Owners

Some of the first companies to own and operate broadcasting stations were the manufacturers of radio receiving sets. These companies were confronted with the problem of developing an adequate broadcasting service so that they would have a logical basis for encouraging the public to increase their purchase of radios.

Another group of companies who were prominent among the original owners of radio stations were newspaper publishing houses, insurance companies and department stores, all of whom were interested in promoting their interests over wide areas.

It was only natural that these stations should be interested in increasing the power of their respective stations so that they might reach a more substantial listening audience. Thus we find that these stations had invested a considerable amount of money in high power equipment and improved facilities before 1928.

During the allocation proceedings, the owners of these stations proved to be the most energetic proponents of the clear channel theory since they were certain in their own minds that by virtue of their ownership of high power stations, that they would derive the maximum benefits from such privileges if this type of channel were established. Once this theory had been established by regulation, these same interests have progressively advocated and promoted the use of higher power for clear channel stations.

The net result of these increases in power and the additional investment in equipment, which were made by the owners of these broadcasting stations, was to greatly strengthen the control of these companies over important clear channel frequencies.

Clear channel stations' dominance and influence has been further accentuated by the following situation. During the past eight years, the Commission has departed from its original policy and permitted certain stations to operate simultaneously with the dominant stations on certain clear channel frequencies. However, the Commission has allowed the dominant station undue authority by requiring the consent of this station as a prerequisite to simultaneous operation on its frequency.

### Chains Dominate

The practical result of this policy has been to allow the chains to dominate the awarding of these privileges in desired localities, since most clear channel stations have chain affiliations. In a few cases, certain clear channel stations have taken advantage of this situation and permitted simultaneous operation on their frequency by small stations, thus completely eliminating the opportunity of other stations to use these frequencies in areas to better radio service.

Now let us see what have been the results of the dominant position given to clear channels and clear channel theory in the 1928 allocation.

The first result was the uneconomic use of the clear channels set aside at that time. The excessive number of clear channels provided for by the Commission in 1928 forced certain stations to increase their power to the minimum of 5,000 watts necessary to secure the right to operate on a clear channel frequency. In a number of cases there was neither the social need nor the desire to go to this higher power. Only the competitive station and the fear of being forced to accept the very much less desirable regional allocation



caused such stations to seek or accept clear channel status. The practical existence of this situation is evidenced by the fact that several clear channel stations are still operating upon the minimum power or at less than the maximum power of 50,000 watts.

Uneconomical use of the clear channels was further accentuated when in 1932 competitive pressure resulted in the creation of a large number of 50 kw. stations, some of which were merely defensive attempts to maintain position of favored clear channel frequencies, rather than being dictated by service needs in the areas in question.

Thus two types of uneconomical use have resulted. High power has been created where it has not been needed in some instances. In others, clear channels have been created where high power has not been able to be supported and therefore has not been utilized.

### Regional Stations

Now let us turn to the regional stations. Several factors governed the allocation of regional frequencies which have a direct bearing upon the problems which must be considered by the Commission at this time. These may be stated as follows:

- (1) Insufficient frequencies were provided for this class of station in the original allocations. This was due to the fact that too many of the frequencies had already been apportioned to the clear channel group and it was necessary to reserve certain frequencies for use by local stations.
- (2) Regional stations were allocated to frequencies on the basis of the same maximum power regardless of the areas which these stations were supposed to cover. No provisions were made for the varying requirements of the different types of area in which these stations were located.
- (3) The maximum nighttime power established by the Commission for these stations in 1928 was 1,000 watts, and a large portion of these stations were licensed to use and still continue to use less than that power at night. Since 1928, some of these regionals have been gradually moved up, first to 2,500 watts daytime and then to 5,000 watts daytime. However, at the present time there is no regional station licensed to operate at more than 1,000 watts night time power.

### Allocation Procedure

The effect of this allocation procedure has been as follows:

- (1) Certain regionals have been unable to adequately cover their normal area of service and are still unable to do so. This is especially true at night when the signals of other stations on the same channel tends to restrict their coverage.
- (2) It has also resulted in extreme congestion of stations on certain regional frequencies. This has been due to the fact that there were more stations than this limited number of frequencies could accommodate. Therefore, we find on some channels, the distance between stations is only 350 miles, whereas on less crowded frequencies, the distance separating stations may be as high as 1,200 miles. In addition, it must be remembered that a number of regionals were forced by these congested conditions to share time on the air with other stations or to restrict their broadcasting to daytime hours. Thus regional stations in many cases have been unable to lay down a good signal in all parts of their area, and, when they have had the additional handicap of being restricted to certain hours of operation, have been prevented from rendering the complete day and night-time service to which their listeners are entitled.
- (3) Stations on crowded frequencies have not been properly equalized, as to distribution. These regional frequencies, as in the case of clear channels, were apportioned on the basis of zones. As a result, there are many stations on certain eastern channels, while in the West and South this congestion does not exist to anywhere near the same degree.
- (4) Today we find many regionals located in areas which require a higher signal strength than can be delivered by a 250, 500 or 1,000-watt station if adequate radio service is to be rendered. Yet due to the rigidity of the limitation of night-time power to 1,000 watts, such stations are at present powerless to meet the needs of their listeners.
- (5) Due to the lack of provision for the use of the maximum regional power, certain stations whose areas require at least this power, have been compelled to either operate at lower power or to go to the added expense of building a directional antenna, to avoid interfering with the legitimate operation of other stations on the same frequency. This is another example of the inequalities growing out of the inflexible

methods adopted in the assigning regionals to frequencies in 1928.

- (6) Many areas which were not provided with adequate services in 1928 were forced to be content with service from a day-time or part-time station because of this rigidity.

### Local Stations

We now come to the local station.

The effect of providing too many clear channels was extended into the allocation of local channels with even worse results. Here an even smaller number of frequencies were provided and they were by no means adequate for the large number of stations that had to be accommodated.

Therefore, the congested conditions characteristic of regional frequencies prevail even to a greater extent on local channels. In some sections of the United States there are instances of local stations on the same channel which do not have a separation of more than 50 miles. This means that they cannot even cover the city in which they are located, much less cover the trade area of that community.

While this congestion of stations was partly the result of having provided for insufficient local frequencies, it was also caused by the classification of channels for equal assignments in zones under the Commission's interpretation of the provisions of the Davis Amendment. For example, in 1928 we find nine local stations in the State of Pennsylvania alone assigned to 1310 kilocycles, whereas there was only one station assigned in the fourth zone to 1500 kilocycles.

Local channel stations were restricted under the regulations of 1928 to a maximum night-time power of 100 watts. In addition to that fact, some of these locals were compelled to operate on shared time or during day-time hours only. Therefore, despite the fact that a number of these stations have greatly improved the efficiency of their transmitters and adopted modern radiating systems to improve their signal strength, they have not been able to increase their signal sufficiently to render adequate service to their listeners. Regionals and other stations have been permitted to increase their power as well as employ modern radiation system, thereby raising the level of competing signal to the detriment of local stations.

### Different Functions

There has not been enough consideration given to the fact that local stations, like regionals, have somewhat different functions to perform in the various areas which they serve. A 100-watt station located in a small community with a limited trade area may adequately cover the sections lying within the sphere of influence of that community. However, in larger secondary markets, this same power often proves inadequate to cover their trading areas due to interference limitations.

Thus we see the following situation developing out of, first, the rigid and arbitrary classification of channels made in 1928, and second, out of the undue prominence given to clear channel service. The balance between classes of stations was upset at the very outset of American allocation, and unreasonable congestion was produced on regional and local frequencies, with resulting impairment of existing service and of opportunity for growth and development in the legitimate fields of service for these classes of transmitters.

This brings us up to the present, and to this hearing. The purpose of this hearing is to rectify, as far as possible, the deficiencies existing in present regulations and allocations.

Several features make such a procedure both possible and advisable. The repeal of the Davis Amendment provides the potentiality of introducing an increasing degree of flexibility into the broadcasting structure of the country with resulting improvement of service and with a distribution of facilities which will be more fair and equitable than that required under a rigid formula of mathematical equality.

The fact that the Commission has been forced in numerous instances to allow common sense modification of their regulations for the purpose of meeting actual practical requirements of service in given areas points to the desirability of changing these regulations in keeping with improved practice and thought.

### Improvements of Transmitters

Improvements in the operation of transmitters have reduced the frequency tolerance of stations from 500 cycles to 50 cycles, which has changed to some extent the engineering basis of the 1928 allocation. Similarly, and of much greater importance, directional



antennae have provided a means of utilizing frequencies in a manner not contemplated by the existing regulations but which now provide improved service in important areas.

The increase in the number of radio families and in the diversity of use put to broadcasting as an advertising medium and medium for local program service has placed a new light upon the various classes and kinds of listener service which are desirable in the American system.

The general trend of recent developments in the regulatory and technical aspects of broadcasting has been toward making possible a greater flexibility of structure than hitherto has existed. This, in turn, gives rise to the possibility of a closer adaptation of broadcasting structure to the many and varied requirements of service on the part of listeners throughout the country.

Since greater flexibility and consequent adaptation of structure to listener requirements is possible, it becomes more necessary than ever to develop a clear-cut philosophy of what constitutes listener service.

We may state categorically that listener service is comprised of two ingredients: the station signal, and the programs conveyed to the listener by means of that signal. Of the two the latter is the more important, for the station signal is merely a means to an end. That end is always the same: the receipt of desired programs.

Satisfactory service must therefore be conceived in two lights. The first of these is the ability of people to receive the signals of a station or adequate number of stations. The second is the ability of these stations to render unique and distinctive program service of a type which is in keeping with the needs and desires of the listeners in the area which the station serves.

It is probable that little if anything can be done in a positive manner regarding the development of unique program service by means of broadcasting regulation. Indeed it is highly doubtful whether such a procedure would be desirable if it were practicable. Our entire legal theory, beginning with the provision prohibiting the censorship of program material, has been inclined away from the control of programs.

### Control of Programs

Such a viewpoint is quite proper. Control of programs borders too closely upon impairment of freedom of speech should injudicious use be made of that control. Moreover an art lives and progresses only if it possesses sufficient freedom of experimentation—and experimentation means the right to make mistakes while finding the right way of doing things—to enable it to develop new and more satisfactory art forms. No one yet has been able to legislate or regulate progress into an art. Broadcasting is an art, an adolescent one. But it can only develop into maturity and maximum service if freedom to experiment and grow is maintained.

If nothing can be done in the way of positive regulation, something can be done, however, in a permissive way. The need for various kinds of service can be clearly recognized and the philosophy of varying needs can be utilized as one of the bases for the granting of facilities in individual cases. The need for varying types of service was recognized only in a most hazy fashion in the 1928 allocation. National service was the paramount consideration. The ability of any large number of stations to produce satisfactory programs in their own studies was still so limited that the possibility of local service was only dimly perceived, and then by but a few. Civic cooperation, the part played by radio broadcasting in the dissemination of the news and similar services was hardly conceived. The diversity of interest among different groups as to cultural and informative programs and even as to entertainment, was hardly appreciated.

Today this situation has changed, largely due to the enterprise which various classes of stations have shown in adapting their service to the particular needs of their area in an endeavor to win loyal listener audiences and to compete successfully with other stations which might be heard in the district.

I shall not enlarge on this point. The testimony presented by various classes of stations: clear channel, regional and local speaks for itself. If there is one thing which has stood out in these hearings it has been this: that there is a need and a great opportunity for localized service as well as for general and national service in American broadcasting and that this need and opportunity must be carefully fostered in every manner possible.

### Principle Developed

In keeping with this philosophy, the following principle may be developed: That the allocation of facilities, in individual cases,

shall include a consideration of the unique and distinctive program requirements of the area which the station in question is designed to serve.

We may also develop a second principle: that, in case general classes of service are developed, a balance must be maintained between them. Various types of service requirements on the part of groups of listeners located throughout the country must be considered in due proportion to their importance. The aim of regulation must always be to achieve the maximum net improvement in listener service, not the fostering of one class or type of service at the expense of other classes with a consequent net loss in total service. Because of limited facilities available no one class or type of service can possibly develop to its ideal proportions. But each class can be nurtured and brought along to a point where, when combined with other classes, the maximum possible service will result to listeners as a whole. The broadcasting structure of the country must be viewed as an organism, not as a group of diverse and loosely connected units.

A third principle which can be stated is as follows: That sufficient flexibility must be maintained in any classification of service requirements or facilities to make possible the adaptation of facilities to the needs and requirements of specific individual areas. This naturally connotes flexibility in regulations since these are the governing factor.

How can these principles be translated into a practical program of action?

In tackling this angle of the problem we must begin with the principle that facilities should be allocated in terms of listener needs: that is, of unique and distinctive program needs and desires of various kinds.

Can we classify these needs into definite categories? If by this we mean the development of classifications which approach mathematical exactitude, the answer is no.

Listener needs are too diverse and their bases too varying. As an example of this, even the classification of rural and urban listeners is of doubtful meaning when considered as a specific classification. The psychology, cultural background, social outlook, recreational habits and the like of portions of the rural population living near our large metropolitan centers may be more urban in nature than may be that of the citizens of a community of 5,000 or 10,000 population situated far from any other large community. It also is well to remember that urban and rural are arbitrary classifications in the Census.

### Water-Tight Classifications

If we cannot develop water-tight classifications, can we establish any broad categories of service? It should be possible to do so, provided a broad fundamental study of the question were undertaken. This study should include the following features: (1) A detailed analysis should be undertaken of the location and nature of radio ownership in various sections of the country. (2) An attempt should be made to determine logical areas of station influence by dividing the country into a number of key centers and dependent territories or areas. This could be done on the basis of market research technique such as presented by Hearst Radio in its discussion of the economic factor in broadcasting regulation. (3) Areas of influence should be evaluated basically in terms of their economic potentialities and needs for diverse service.

If broad classifications can be developed, they will be certain to be discovered by recourse to such study and analysis.

Two contributions can be made to initial thought in this field even without detailed analysis. The first of these is a statement of what may be the general type of classification of needs of service which will be developed in scientific form by the suggested study.

In this respect one may begin with national program needs. This would consist of programs which would be of interest to all classes and types of listeners, to be made available over the country as a whole. These programs would consist mainly of programs and talent available only in a very few talent centers and which could not be brought to listeners except by national service. It would also include events of public interest which would be similarly limited as to method of presentation.

A second category of program needs would be sectional needs. Large portions of our country are relatively homogeneous culturally and economically. The central south, the corn belt, the German-Scandinavian sections of the wheat belt are examples. The area over which any given sectional program needs would exist would vary materially in size and contour in various por-



tions of the country. It would constitute, however, a type of service deserving of consideration.

A third and highly fundamental category, would be localized program needs. These would be the needs and desires of the locality in which the station was situated, together with these of the territory surrounding that center which was dependent upon it both culturally and economically. Such areas tend closely to approximate consumed trading areas, as has been shown by the previous testimony of other parties before this Commission. These areas also vary most materially as to size and nature.

### Classes of Programs

Another approach to classes of program needs is that of the need of diverse service within a given area. The varying racial, cultural, social and economic groups within a community may dictate a wider variety of service in one instance than in another. A large metropolitan center such as New York will have diversity of needs, in contrast to a smaller town of 100,000 or less in size and possessing a highly homogeneous population. Diverse needs also may exist on the part of radio advertisers. It is desirable and economically necessary to provide facilities which it is practical for local retailers to use as well as for larger advertisers.

A second contribution which can be made merely by deductive analysis is a listing of the factors which will go into determining the nature of the service or different types of service required by each area. These are as follows: (1) Size of area in question; (2) Contour of the area limits; (3) Number and location of radio families in the area; (4) Social and cultural characteristics of the area; (5) Economic potentiality.

These observations at least furnish a starting point for a classification of needs of listener service.

I have mentioned the desirability of detailed scientific study of this question. Obviously this will take some time. I do not propose that the entire program of development of new allocation practice should be held up until such a study was completed. It is possible to make a beginning in this direction without waiting for the completion of such analysis. This can be done by the following procedure:

1. The development of sufficiently flexible regulations to enable a sound consideration of the economic and social factor in the allocation and assignment of facilities in individual cases.

2. The setting up of procedure in determining the needs of service which will allow adequate and scientific consideration of the social and economic factor in hearings and assignments on specific cases.

3. The following of the principle that a station wherever possible, shall be given the opportunity to adequately cover the entire area or territory which constitutes its logical zone of influence economically and socially.

### Listener Service Needs

Merely by following such a procedure, a great deal may be accomplished. It is even possible that all of the desired progress can be secured by recourse to this procedure and that the establishment of classes of listener service needs will merely take the form of general bases of desirable goals rather than specific regulatory categories.

Thus far I have considered listener service needs. I have started at this point because it is the fundamental approach. Technical facilities are merely the means whereby these needs must be fulfilled. We now come to the question as to what probably can be done along the lines of adapting the allocation and distribution of technical facilities more closely to needs of listener service.

The first thing which can be accomplished in the technical field is that of developing a broader and more flexible concept of classes of channels. Any classification of channels should begin with two basic types: (1) Unrestricted service frequencies, and (2) restricted service frequencies. Unrestricted service frequencies should be those with regard to which but one station was located on each channel so designated for night-time operation. Restricted service frequencies would be those to which more than one station was assigned for night-time operation. Restricted service frequencies might be divided into a number of sub-groups if desired. These sub-groups should be based upon such classification of listener service needs as might be developed. In this manner sufficient flexibility of classes of frequencies and stations can be set up to allow a realistic approach to listener service needs.

A second thing which can be done in the allocation of facilities

is a more realistic approach to the clear channel situation. I think we can begin that approach by stating that there is no need of covering the entire nation with one station at night-time, even granted that it is theoretically practical to do so. I ask you to note that even though it is practical to accomplish this at night-time, it is almost entirely out of the question to do so in the day by any conceivable means of technical development. This would mean that the assumption that a single station could render national service would require an application of an extremely different allocation for day and for night service, respectively. This application would be considerably more complicated than the present question of different power for day or night.

### National Service

National service as we have discussed it is logically the province of network broadcasting. It is necessarily so; networks alone can tap the few important centers where outstanding talent is available for national service. It will be almost impossible for any single station to reach these few widely scattered centers. Networks also are probably the only means of securing sufficiently intensive coverage of a nation to adequately render this service to all listeners. Finally, only by recourse to interchange of programs on a network basis can the varying and diverse public event programs be brought to listeners throughout the country.

If so-called unrestricted or clear channels are necessary to render some unique and distinctive form of service, they undoubtedly should be maintained. However, one thing is certain: that the present number of so-called clear channels provided for in the regulations of the Commission is not essential. This is evidenced by the fact that full use has not been made of the facilities so designated.

In order to more effectively use a large number of the present so-called clear channels, the foregoing suggestions of flexibility in regulation may conceivably permit use of duplicated stations on the clear channels with or without directional antennas as required to bring about the fullest use of such channels in the public interest.

The suggestion for flexible regulations can be utilized for improvement of service on shared channels, as well as on those channels now designated as clear channels. For example, the expressed needs for increased night power on regional channels may well be considered in this light and authorized in cases where a need is shown and where detriment to other existing facilities will not be brought about.

This also applies to channels now designated as local channels. The suggestion is made that needs for increased day power, as well as night power, by local stations be considered on the same basis. By following this procedure, it should be possible to introduce a considerably increased measure of flexibility into the regional and local station structure.

### Extreme Congestion

It should be borne in mind that where extreme congestion exists today in any given section, it will hardly be practical to allow unlimited increases of power beyond a reasonable extent, until some of this congestion is relieved by the graduation of these stations into the logical classification to which they belong.

In conclusion, may I say this: It is the hope that my testimony has at least served to emphasize three things. The first of these is the fact that only by introducing as large a measure of flexibility as possible into broadcasting structure and regulation can the resources of American broadcasting be made to fit most closely listener needs and its service developed to its maximum potentialities.

The second feature which I hope this testimony has served to emphasize is the extreme need of maintaining a balance by the various types of service necessary to a fulfillment of the public interest. The American listener does not constitute a simple homogeneous body. It represents many diverse factors in society. Each of these have a right to the type of service which most fits their requirements in accordance to their importance in the community as a whole. As far as possible, radio broadcasting service should be given to them on this basis.

Finally, I hope that this testimony has served to indicate the need and the advisability of an evolutionary approach to the whole problem of allocation. I hope also that it has indicated the desirability of carefully considering practical measures rather than of being enamored too exclusively with the application of a single theory. This point I can emphasize best by one quotation that appears on the cover of one of my law books: "Index learning turns no student pale, yet holds the eel of science by the tail."



If that wise and practical minded poet of by-gone century, Pope, were to be writing regarding American broadcasting today, he would probably do it this way: "Detailed study of practical considerations turns no student pale, yet holds the eel of science by the tail."

### Sutton Cross Examination

Under cross examination Mr. Sutton testified that he had been on the engineering staff of the old Federal Radio Commission in 1928 when the reallocation plan was worked out. He said that of course there have been many technical developments since that time. In answer to a specific question Mr. Sutton stated that the smallness of the broadcast band is one of the many problems confronting the Commission.

In his opinion, said Mr. Sutton, both engineering and economics have to be taken into consideration in connection with the present radio problem. It is necessary, he stated, to have engineering as the basis for any new allocation plan.

Questioned concerning the use of clear channels, Mr. Sutton said that it was his opinion that many of them could be duplicated and that congestion in other classes of stations could be relieved to the extent clear channel duplication is permitted. Mr. Sutton pointed out that in 1928 the engineers insisted that WGY, because of simultaneous operation with KGO, San Francisco, would not be useable beyond the city of Albany, New York, whereas WGY can be heard satisfactorily today in Washington, D. C.

Questioned concerning the use of power on clear channels, Mr. Sutton drew a comparison with the application of a magnifying glass. It would be ridiculous, he said, to adapt the use of 500 thousand power telescopes as an ordinary aid to human vision because it was impractical. He cited this as an illustration of following a fundamentally correct theory to its extreme limits.

(Edward A. Allen appeared before the Commission several days ago as President of the National Independent Broadcasters but his testimony is printed herewith in connection with a statement made on behalf of the same interests by George O. Sutton today.)

### Edward A. Allen

Edward A. Allen, Station WLVA, Lynchburg, Virginia, and President of the National Independent Broadcasters, appeared before the Commission on behalf of the local stations which are members of his association.

Mr. Allen said:

My name is Edward A. Allen. My residence is Lynchburg, Virginia. I am president of the Lynchburg Broadcasting Corporation. As such I own and operate WLVA, a local station serving Lynchburg and operating under a license granted by this Commission.

I also am president of the National Independent Broadcasters. This group is composed of local and regional stations not affiliated with networks. Its actual membership is limited almost exclusively to local stations.

The purpose of organizing this group was twofold. The immediate and limited objective was that of providing a means for the promotion of the use of local stations by national advertisers.

A broader and more fundamental purpose of the group was that of providing a means whereby the problems common to local stations might be given consideration and programs for the improvement of stations of this class developed and initiated.

I am appearing before this Commission today in behalf of this group of local stations. The owners and operators of local stations feel that it is most important that the unique service and position of their class of station in American broadcasting be thoroughly appreciated at this time. The various proposals which have been placed before this Commission during the course of the hearings have included, almost without exception, provision for marked increase in power and extension of facilities for different classes of stations.

### Service Impaired

If the adoption of one or more of these proposals should result in too great preference of any one class of transmitter, the balance between various basic types of service might be impaired or destroyed. The upsetting of this balance quite conceivably could place the local stations at a decided disadvantage in the broadcasting structure. Not only might it make further inroads into the local service now possible, but even more important, it might place serious obstacles in the way of the future development of local stations to a position of service and economic stability which will enable them to fulfill their rightful role in the broadcasting structure.

We are especially concerned at the present time, all the more

because we feel that from the very beginning of broadcasting regulation, the local station has been in the position of Lazarus dependent upon the crumbs from the table of Dives. We say this, not in criticism of this Commission, but in realistic recognition of a situation which, in 1928, was created out of the necessity of providing room for over-extended facilities within the straight-jacket of the Davis Amendment, and out of the lack of knowledge of the technical, economic and social aspects of broadcasting which then existed. Our attorney, Mr. Sutton, will deal with the details of this matter later.

The thesis of our presentation today is this: Whatever the Commission may do in the future in the allocation of facilities or the promulgation of regulations for that purpose, they should adequately safeguard the position of the local station. Indeed, it should go farther. Where present conditions make impossible the rendering of adequate local service, steps should be taken to rectify this situation, so that the local station may be afforded the opportunity to effectively render the service for which it was designed and created.

### No New Set of Rules

In advancing this thesis we shall not advocate any new set of specific regulations. Neither shall we attempt to set forth a comprehensive solution of the local station problem; for we do not delude ourselves that we know this solution. Rather, we shall confine our efforts to pointing out modifications in regulation, policy and viewpoint which at least may lay the groundwork for an improvement of the local station situation, and consequently of the service rendered the community.

The local station always has been the verbal football of the broadcasting industry. At times it has been wept over by special interests seeking to protect their own advantage by hiding under its cloak. At other times it has been damned as the cause and root of everything that was distasteful or undesirable in broadcasting. It has been patronized and looked down upon—a publican at a banquet of pharisees. It has been elevated in shining armor. But, most unfortunately, it has seldom been understood.

The nature of local station service can be appreciated particularly well when examination is made of the locations of stations in this class. There are approximately 280 local stations, on local channels, in the United States. These comprise nearly two-fifths of all of the stations of the country. More than 60% of them are located in towns of 50,000 or less in population. More than two-thirds of all local stations are situated in communities of less than 100,000 population.

In addition to this group of local stations operating in middle-sized and smaller communities, there is a second group comprising approximately 40 in number and accounting for about 16% of the total local stations, which are found in the metropolitan areas of communities of more than 500,000 in population.

### Fulfills Two Needs

Thus the local station in the main seems to fulfill two needs; that of rendering basic localized service in the smaller communities, and that of rendering specialized service to portions of the population of large metropolitan centers.

There is a close parallel between local broadcasting stations and two types of newspapers which constitute highly important elements of the American press. The one is the small town or country newspaper which constitutes the backbone of local democratic and representative government, and of the social and economic life of these small communities. The other is the neighborhood newspaper in our great centers of population. This parallel may serve to emphasize the importance of the local station in the broadcasting structure.

The importance of local station service to the two groups with which it concerns itself with, primarily is usually appreciated but imperfectly. It is too often lost in the welter of spectacular national programs—especially the popular entertainment programs, which take up almost all of the evening hours of the average network affiliated station.

I wish therefore to describe this service to you, briefly, probably in a different light from which it has been addressed to you previously. I believe these examples are typical of the service being rendered by the conscientious local station.

A local station situated in a middle-sized or smaller community renders a number of highly important services, the majority of which it would be difficult to duplicate.

In the first place, the local broadcasting station is a natural channel for the discussion of local civic matters. As such it plays a highly important part in the achievement of community solidarity and cooperation.



## An Illustration

May I illustrate this point? If there is a local bond issue to be presented to the voters for their consideration, if a question of municipal ownership of the local water company or power station arises, or if some similar civic question presents itself, the local station can and does take a leading part in securing a full and free discussion of the pros and cons of the issue. It is good promotion for the station to bring before its microphone the leaders of the various groups interested in the project, for it will create listeners for the station. It likewise is sound service in the public interest.

This is a service which a station situated in the community in question is in the best position to render. Regional stations, located in more distant centers and probably including a reasonably large number of these smaller towns within their service area can hardly render a service of this type, except to a limited degree. They will not be able to take sufficient time to adequately cover the varied interests of all of the towns in the area. Only the local station, concentrating upon its own community and adjacent area, can do that.

Let me show you how, from my own experience, that localized service builds for community sol-i-dar-i-ty and cooperation.

### Emergency Call Service

For a number of years our station has maintained an emergency call service for blood transfusions for the local hospitals. One day the telephone rang. It was a well known doctor speaking from one of our institutions. Said he, unless a certain type of blood was immediately forthcoming, a mother would die as a result of childbirth. The word was broadcast. Within one-half hour 30 odd people had responded, the right type of blood had been found and a human life saved. This is a specialized service, particularly suited to a smaller town station.

Local stations cooperate with every community enterprise—educational, religious and civic. They not only cooperate with them, but where possible, actively cultivate these institutions and organizations. In so doing, they are being completely realistic. They realize that the most valuable thing which they have to offer the community is a signal equal or superior to competing signals from the outside and programs of particular local interest. They are dependent upon the community for program material and they hasten to become as much of a community institution as possible. Only in this way can they hold any measure of their audience against the entertainment programs broadcast by the networks and larger stations in the evening.

### Advertising Medium

A local station is an important advertising medium for the merchants of the community. The larger regional station in an adjacent community probably will be out of question because of high rates and waste circulation. At the same time the advertising which it carries will threaten to draw trade from the local merchants. In the local station, the merchants possess a means of reaching the prospective buyers in their own community at a reasonable cost.

The local station will tend to be a strictly local enterprise, for the average 100 watt station has little to distract it from local advertising service. Almost 90% of local station revenues are derived from local broadcast advertising sponsors as compared to approximately 50% for the medium as a whole. It also is interesting to note that in 1935, according to the National Association of Broadcasters, nearly 15% of all non-network business in the country was carried over local stations.

The local merchants have a right to possess this type of advertising service just as much as the station has a right to render it over the natural trade area of the community which it serves. The Economic stability and well being of the community's retail trade is dependent upon its being able to hold its own with competing towns. In the case of smaller towns, this means the need of meeting competition from larger cities. Cooperation between the local station and local retailers will assist in meeting this out-of-town competition. I know of at least one instance recently where a local station refused an advertising account averaging \$1,000 a month from a nearby city because it would serve to attract trade from the home town. This is a practice which small town newspapers have resorted to for many years. It makes for community sol-i-dar-i-ty and stability.

### Intensive Coverage

The local station also provides intensive coverage of a given community to national and regional advertisers. That this, how-

ever, has not been resorted to in many instances, is due principally to the manner in which radio-naïve advertisers unduly worship power.

Local stations entertainment programs also will reflect local needs and desires. Hill billy music and similar entertainment has its legitimate place in American radio entertainment; just as legitimate indeed as symphonic music. It is the folk-music of America and is firmly woven into the life of many communities and sections. This simpler, localized service is a particular province of the local station which is faced with the problem of meeting the many and diverse program desires of larger areas.

There is a final service which the local station renders to the broadcasting structure as a whole. It is the proving ground for talent and managerial ability. If the general level of skill and ability in the local station field may at times have fallen short of desired standards, might this not have been due to the fact that the enterprising local broadcasters had moved into the higher categories, that the local talent had moved to the larger stations if it possessed any real and lasting merit? This feeding of talent and ability to the larger stations undoubtedly will go on as long as there is radio; just as each year, it fills New York and Chicago with ambitious young people from Iowa, Nebraska and other outlying territories.

This then, in my experience is the service rendered by the local station to the community which it serves. Localized news and entertainment, civic cooperation and the discussion of civic problems, and important local economic service are its principal ingredients. It is a type of service which is being rendered today to an increasing degree by local stations throughout the country. It has only been in recent years that the local station has begun to find itself; that young men of sufficient skill and enterprise have entered the local station field, and have begun its development in an orderly manner. The local station, an unwanted child, has begun to come into its own. It should be encouraged and aided in every possible way to reach its true stature.

Mr. George O. Sutton, our counsel, will present to you the problems and the suggested solutions by which this end may be achieved.

### Cross Examination of Allen

Mr. Allen was cross examined on behalf of the Commission by T. A. M. Craven. Mr. Allen said that there is no question in his mind but what many potential listeners are withdrawn from local stations because of reception of regional and clear channel stations. This, he pointed out, means a loss of profit in the end to local stations. However, he contended most heartily that the local stations of the country are today doing a grand job and as the local stations are able to throw better signals they create more listeners.

### Profit and Loss

Answering specific questions of Mr. Craven, Mr. Allen stated that he believed the majority of the local stations of the country have been just about breaking even from a financial standpoint. He said some of them had made what he termed a small profit, meaning from \$2,000 to \$3,000 a year. He testified that there had been no organization of local stations prior to last year when his association was organized.

The principal problem of the local stations today, said Mr. Allen, is not that of getting programs but of laying down a suitable signal to cover its own urban territory. There is no question, he said, but that local stations need an improvement in the way of better signals. Most of the local stations of the country, he said, are owned and operated by men whose sole business is broadcasting.

### National Independent Broadcasters

Mr. Sutton made the following presentation today on behalf of the National Independent Broadcasters:

I have been asked to present the general problems facing the local station by reason of the present allocation of facilities, the principles which should be applied to the future with regard to local stations, and the practical steps necessary for carrying out these principles.

What is the situation with regard to the allocation of facilities now facing the so-called local stations?

The first thing which becomes apparent upon an examination of the local station situation is an extreme congestion of stations upon certain local channels. This is particularly true with regard to specific portions of the country, principally in East North Central, Middle Atlantic and New England States.



This congestion arose in the following manner: The Davis Amendment required that broadcasting facilities be distributed equally among the five zones in an attempt to equalize service available to various sections of our population. The Federal Radio Commission, in interpreting the Amendment, followed a policy of securing a very close mathematical equalization of facilities between the zones. This equalization was achieved by classifying channels in accordance with preconceived engineering ideas of necessary classes of service, and of establishing a limit of maximum power to all stations located on given class of frequency.

The starting point for this classification of channels was the reservation of forty of the available ninety frequencies for so-called clear channel service designed to serve listeners in wide areas. The dominant reason for forty rather than any other number of clear channel frequencies was conceived necessity of providing room for existing high powered stations. The competitive demand of high power stations located in the same area for equal treatment was a strong force motivating for consideration of clear channel type of service.

### Congestion Caused

The result of using 44 per cent of the existing frequencies for clear channel service caused a congestion on the remaining frequencies. An attempt was made to allocate existing stations of from 250 to 1,000 watts night-time power on the remaining frequencies. An attempt was made to maintain proper separation between regional stations on some channels to make possible reasonable rural service in the areas adjacent to the community in which the station in question was located. This principle could not be extended to all regional frequencies because of the large number of stations which had to be accommodated. Consequently, congestion resulted, especially on the higher frequencies.

The large number of stations of the regional category existing at the time of the 1928 allocation reduced the available channels for local service to six. This caused an even worse congestion on local channels, since approximately the same number of local stations as regionals, existing in approximately the same areas, had to be accommodated on less than one-sixth of the number of channels available for regional service.

The existence of certain clear channel and regional stations in specific areas on given frequencies, and the necessity of maintaining a proper separation between frequencies used for any class of station in a given locality, made it impossible to employ certain of the local channels in particular sections of the country. This resulted in a further congestion, especially in given regions, and continues to this time.

Thus it was necessary to allocate 100-watt stations on the same channel within 40 and 50 miles of each other and permit simultaneous operation. Though this was in 1928, the same condition has persisted since stations could not find other frequencies on which to operate.

Another example of this congestion in 1928 was the necessity of allocating nine local stations in the State of Pennsylvania upon one frequency, namely, 1310 kilocycles. In contrast to this, the 1500 kilocycle frequency only had one station allocated to it in the entire fourth zone.

### Reduce Service

The practical result of this congestion was to materially reduce the effective service range of a large number of local stations at night, and thus to impair their ability to serve more than highly restricted areas. These areas often fell below the announced purpose of local stations to serve smaller urban centers and a reasonable adjoining territory.

The increased number of local stations both being applied for and granted by the Commission in recent years, if continued, may give rise to conditions which will result in further congestion and impairment of service. The rate of increase in new local stations has been most pronounced. During the entire period of 1928-1934 a total of 50 new local stations were granted licenses. During the year of 1935 and the first eight months of 1936, 68 such stations were established.

The existence of local stations on channels adjacent to clear channels raises important problems when the possibility of operation at 500 kilowatts power is envisioned. Based upon present night-time mileage separation standards which require a separation of 350 miles at 10 kilocycle separation between a local and a clear channel station, the night-time separation required between a local and a 500 kilowatt station would be approximately 800 miles. If 30 kilocycles and 40 kilocycles separation were under

consideration, a mileage separation of 460 and 420 miles, respectively, would be required at night.

In the case of the 1190 kilocycle frequency now used by WOAI, there are nine local stations in existence on 1200 kilocycles within 800 miles of San Antonio. If 500 kilowatt stations are authorized, it may be assumed that competitive pressure will force WCAU to apply for 500 kilowatts. There are seven local stations on 1200 kilocycles, which are within 460 miles of Philadelphia. There are also 11 local stations on 1210 kilocycles within 420 miles of Philadelphia. Therefore, the operation of WCAU on 500 kilowatts and WOAI at the same power, might involve question of interference with 18 existing local stations. Thus approximately 10 per cent of the total local stations in the country might be involved when considering 500 kilowatts on 1170 and 1190 kilocycles.

### Disadvantageous Position

The local station finds itself in a disadvantageous position in several other respects. From a regulatory standpoint, the ratio of day-time to night-time power allowed by the Commission is only half as great as in the case of regional stations. The local ratio is  $2\frac{1}{2}$  to 1, while the regional ratio is 5 to 1. Since congestion makes it possible for the local station only to reach its outlying rural area in daytime, the restriction of daytime power actually serves even to reduce this possibility.

The local station is further denied the possibility of bettering its position and of achieving some of the flexibility which has been secured in the regional and clear channel fields by recourse to the use of directional antenna. Though there is no regulation on this matter, the effect of the use of directional antenna in conjunction with the present congested condition of local frequencies raises questions as to the practicality of such a step. Thus there is no development in the technical field which makes possible flexibility that is at present applicable to the local station. Therefore the only way in which the local station can improve its service is by improved efficiency of the transmitter and radiating system employed. The use of efficient modern radiating systems has become widespread in recent years. Even with these modern methods of efficient operation local stations find it impossible to maintain the balance existing between their own signals and competing signals delivered by regional and clear channel stations within their service area. As an example of this, the fields of several stations were measured in 1934 and 1936 near Jackson, Michigan, with the following results:

	1934	1936
WWJ	.117	.520
WJR	.527	2.700
WTAM	.056	.180
WOWO	.176	.325
WIBM (Local)	2.400	3.900

Thus from the allocation viewpoint, from the standpoint of regulation, from the angle of the possibility of utilizing modern technical developments to solve its problems, and finally from the resulting inability to maintain competitive balance with other classes of stations and service, the local stations finds itself at a distinct disadvantage; and it is completely at the mercy of this Commission if its role in American broadcasting is to be preserved.

### Useful Function

What, therefore should be done about the matter? It has been shown that the local station performs a highly useful function in the American community. It has been indicated that this function is performed at the present time under sufficiently adverse conditions to materially limit the degree to which this important local service can be rendered in an effective manner. Therefore, it is highly essential that the interests of local stations and local service be safeguarded in every possible manner by the Commission in future allocations and in its regulatory policy.

To safeguard the position and service of the local station it is necessary to maintain a proper balance between the importance accorded to various basic types of service. This implies not only protection of any essential class of service from inroads by any other class, but of greater importance, it implies the equal fostering of these various classes when improvements and extension of facilities are effected. The local stations should definitely share in any improvements in allocation or regulation which may result from these hearings to a degree at least proportionately equal to other classes of service.

In keeping with the contention that proper balance should be



maintained between basic classes of service, this association is opposed to any moves which would radically alter the existing broadcasting structure. We believe any radical or sweeping change might easily upset the desired balance with the consequent impairment of general service.

### No Radical Change Desirable

If any radical change is undesirable, then any move which will strengthen a particular class at the expense of other groups will disrupt this balance. This is true of the proposal for 500 kilowatt stations. The creation of any large number of these stations will adversely affect the economic position of many regional stations. According to the testimony of Mr. Paley it will result in the elimination of a number of regional stations from present national network structures. It is idle to retort optimistically that some other network may be formed which will take in these stations. Network creation is not as simple a matter as that. Key cities as well as secondary cities, must be included in the completed network structure. If the stations located in the major key cities are 50 kilowatt or 500 kilowatt and the networks retain these stations, the probability of anyone being able to construct another successful national network out of the leavings of NBS, Columbia and Mutual is highly remote.

More important will be the effect of reduced national advertiser use of regional stations. This applies to both national network and national sport business. Network affiliated regional stations located in the service area of a new 500 kilowatt transmitter may retain their affiliation, but they will do so under highly restricted conditions. The increased costs of using any large number of 500 kilowatt stations on the part of the national advertiser undoubtedly will tend to force him to use a smaller number of stations. Consequently the regional station within the service area of the 500 kilowatt transmitter will be the one dropped. It is quite nice to state that the advertiser will still require intensive coverage in various market areas, but it is only partly relevant. However, the law of comparative advantage enters at this point, and the advertiser will tend to use those stations which, in relation to cost, will give him the most for his money. Widespread coverage of the 500 kilowatt station will still be the first choice, followed by intensive coverage of restricted areas.

This entire tendency will be intensified by the present worship of power on the part of the average radio advertiser. All due respect to him, the majority of his class are highly unsophisticated when it comes to a fundamental knowledge of radio coverage. Power and coverage are synonymous to the majority of advertisers. "The Nation's Station" is a term which they have taken with a certain amount of literalness and with little real analysis. Consequently, at the outset they will flock to the new 500 kilowatt stations. The worst of it will be that they will remain on these for sometime before greater knowledge will lead them into more constructive action.

This tendency will exist with regard to both national network advertisers and national sport advertisers.

### Position of Local Stations

What does this process have to do with the position of the local station? Declining national revenues on the part of the regional stations will result in increased emphasis being placed upon local business by this class of station. Consequently, the competition for local volume will be materially increased. This will take place not only in the cities where both regional and local stations now exist, but also in any communities lying within the coverage area of regional stations which happen to have local stations located in them. The regional station undoubtedly will follow the example of the newspapers and develop special retail programs and retail promotions for the outlying communities in their area. A number of regional stations already have done this. It is an old story in the newspaper field.

The regional stations undoubtedly will follow newspaper practice in another respect. Usually the advertising placed on community promotional programs of this type is billed at special rates, often materially below the regular rate. Competition of this type will constitute a severe problem for the local station situated near a regional station whose interest must now be concentrated more than ever upon local business.

Thus the absorption of an unduly large proportion of national business by the super-power station will start a movement which, like the snow-ball rolling down the hill, will threaten the economic stability of every class of station below it. The impairment of economic stability of the other classes of stations will result in

a disruption of balance between services, since effective service can be rendered only where there is adequate revenue.

This is all the more important to the local station by reason of the fact that the position which it finds itself in, even at the present, makes economic solvency, to say nothing of stability a hard won battle.

The second contention, is, that enough flexibility must be maintained, or created where necessary, to enable each class of station to perform its rightful role in broadcasting. It has been shown that the rigid classification of local service, and the congested condition of local channels make it impossible for many local stations to serve adequately the communities in which they are located; and the outlying territory which normally comes under the influence of those communities.

### Local Function

And here we come upon an important thought: the difference between the rigid classification of a station of a certain power as local, and the actual "local" function to be fulfilled. It is a truism that a local station should render adequate service to the locality which it serves. But that has nothing to do with power, for power is not a measure of utility. What it means is that the station in question must be able to deliver its local programs over the entire area of the community; and by area I mean both the community itself and the adjoining territory coming within its influence.

In the smaller towns in which local stations tend to concentrate themselves, this means coverage in a portion of agricultural territory surrounding these towns. This is quite logical, for the farmers or suburbanites in these contiguous districts are just as much interested in the doings of this town as are the inhabitants of the community themselves. They buy their goods there. Their children probably go to the local high school, especially since the consolidated school has become so important. They seek the town for entertainment. They are interested in the life of the town. Unless the local station serves this area it is not really fulfilling the local function. If it is prevented from serving such areas by allocation or regulations, it *cannot* fulfill the local function.

This leads to another important conclusion. The difference between the average low powered and congested regional station, and the average local station is merely one of classification without consideration of social or economic function. The regional station of this type merely renders local service to a community and a dependent area of larger size. Other than that, it is identical with a local station. Indeed the entire classification of regional and local stations is absurd when viewed from a social or an economic angle.

### Regional Network Affiliations

This is particularly true where independent regional stations not affiliated with networks are concerned. A network station is somewhat different in so far as it is part of a national magazine and partly a newspaper. Its local service tends to be subservient to its national programs. It will carry very few programs of local interest at night time, indeed very little other than popular entertainment, by reason of the almost complete sale of its facilities to national advertisers. The bulk of local service therefore must come from the independent so-called local stations, and the independent so-called, and in my opinion misnamed, regional stations of the country. It is important that the interests of the 441 of these now in existence be most carefully protected.

If there is no essential difference between the so-called local station and the average low powered and congested regional station, then it is desirable that greater flexibility should be achieved, if possible, both in the classification of stations rendering local service and in their allocation. Probably it would be wise to have a larger series of classes of stations designed to render service over varying sized area, rather than to adhere to the present archaic and illogical rigid classification of regional and local channels based upon power.

To reduce this idea to more than a theoretical assertion requires that provision be made for greater flexibility of allocation in the local station structure.

In the first place the local station, no matter how classified as to power, must be able to cover the area of influence of the community in which it is located, if it is to serve the local function adequately. This means that it should be given such power as is necessary, and such assignment as may be required for this purpose, at least as far as this may be practical.



## Is It Practical?

This leads to the question as to whether this is at all practical. In the first place duplication should be authorized and then be extended on certain so-called clear channels, and provision made in this manner to relieve the present congestion of regional frequencies. This would in no way impair their existing reasonable rural service, but a reasonable number of high powered stations duplicating on present clear channels is probably the best economic use than can be made of the limited number of available channels.

If regional station congestion were relieved in this manner, then deserving local stations could be moved onto certain of the present so-called regional channels. If they continued to be maintained at a reasonably low power and were allowed to make use of the benefits of directional antennae, they would be placed in a position to render more effective local service.

Relief of congestion on local channels in this manner also would make possible either horizontal increases in power or the introduction of greater flexibility in the remaining so-called local field, if it is still called that.

In this manner, and by careful study of individual allocations, the situation of the local station can be improved.

Flexibility of regulations is the thing which the local station requires—flexibility and the right to grow. If the latter exists, it is certain that provisions will be made in some fashion for the former. This may be obliged to take place mainly in the considerations of individual assignments, but we are hopeful that it will be effected once the importance of local service is fully recognized.

### Ben S. Fisher

Ben S. Fisher filed a large number of exhibits on behalf of his clients, one of which requested that all stations on 620 kilocycles have their night-time power increased to 5 kilowatts. He said that KVOB on 920 kilocycles was not interfered with by any other station on that frequency or from a station on 880 kilocycles in the same city.

On behalf of KVI Mr. Fisher asked for a night-time increase of power to 5 kilowatts and also asked a similar increase in power to all regional stations.

KHQ which operates on a frequency of 590 kilocycles Mr. Fisher said is also asking for an increase of power to 5 kilowatts at night and he requested this same increase for all stations on that same frequency.

Mr. Fisher speaking with reference to KVOB, Denver, and from information which he received from stations in that area stated "it has been demonstrated that this 40 kilocycle separation existing in Denver has been a complete success and that no objectionable interference has resulted from such operation. Not a single complaint has been received by KVOB over five years' operation from its allocation." Mr. Fisher said further that "due to the improvements and the selectivity of radio receiving sets and due to the better transmission brought about by closer adherence to the assigned frequency, it is believed that the radio art has so advanced that it is now practical and feasible for the Communications Commission to adopt a separation of 40 kilocycles in the same community and it is, therefore, recommended that such standard be adopted."

### WTIC Testimony

Mr. McNary today made an engineering statement on behalf of Station WTIC, the economic side of which was presented last week by D. A. Read.

Mr. McNary said:

Since WTIC and KRLD began simultaneous operation on 1040 kilocycles on May 8, 1934, there has been an opportunity for a number of observations on the coverage of the two stations. Field observations have been made at various times in New England, in Texas and in intervening states to determine the extent of coverage and interference. In accord with the terms of the Special Experimental Authority, under which these two stations operate simultaneously, most of these data have been placed on file with the Commission prior to the present date.

WTIC operates with a power of 50 kilowatts in an area having rather high attenuation, in consequence of which the primary service area is limited to 30 or 40 miles from the station. It has been observed that the limitation to service in this area at night is fading rather than interference from KRLD, since fading becomes objectionable at distances from 30 to 40 miles from WTIC.

KRLD operates with a power of 10 kilowatts in an area having relatively low attenuation resulting in a primary service area somewhat greater than that of WTIC in spite of the disparity in power. The primary service area of KRLD at night is limited by fading to distances varying from 40 to 90 miles. This difference in range in the several directions is due to the directional characteristics of the antenna used. The primary night service area of KRLD appears to be free from objectionable interference from WTIC.

### Synchronous Operation

During the past year WTIC and KRLD have been operating with synchronous carrier frequencies. The apparatus at WTIC, which was developed by engineers on the staff of WTIC, comprises a receiver for picking up signals from WLW, which operates on 700 kilocycles, and apparatus for controlling automatically the 1040 kilocycles carrier of WTIC from the received signal of WLW. This apparatus has functioned perfectly.

A manual control system issued at KRLD for controlling its frequency from signals likewise received from WLW. While the manual control has functioned with some degree of satisfaction it appears that automatic control is preferable.

The synchronized operation of WTIC and KRLD has furnished a basis for observations of interference between two stations transmitting different programs having a small carrier frequency difference. So far an exact analysis of effect of carrier synchronization with different programs has not been arrived at. Practical observations, however, indicate that there is a distinct benefit to be obtained through the use of this expedient although program cross talk is still the limiting interference factor.

Both WTIC and KRLD render some secondary service outside of their respective fading areas at night under average conditions. Observations have indicated that the secondary night service is more dependable northeast of Hartford and southwest of Dallas. In the Dallas area static appears to be more of a limitation to secondary service than interference. Observations have indicated this to be true as far west as Albuquerque.

As a result of this experimental operation it has been demonstrated that Station WTIC at Hartford, operating with a power of 50 kilowatts, and Station KRLD at Dallas, operating with a power of 10 kilowatts, separated by a distance of approximately 1500 miles can operate simultaneously on a common frequency without a common program and still render their primary service area free from heterodyne or other types of interference. In addition to the primary service some secondary service is rendered by each station depending on transmission conditions.

### Louis G. Caldwell

Louis G. Caldwell today was heard in rebuttal testimony on behalf of the clear channel group in which he called attention to the fact that that group is interested (1) in the preservation of clear channels and (2) the removal of the maximum limitation on power.

Mr. Caldwell said:

It is two weeks since this hearing commenced. The presentation of the case in behalf of the Clear Channel Group commenced on the first day of the hearing. Since the close of that presentation the Commission has heard other groups, as well as a number of individual concerns. Some of these have supported our contentions either in whole or in part; others have directed themselves to matters which do not have any direct bearing on the two issues in which the Clear Channel Group is primarily interested: (1) the preservation of clear channels and (2) the removal of the maximum limitation on power. A few have directly opposed our position on both issues.

The Commission has already been so patient and so generous with its time that it would be unfair to indulge in rebuttal evidence any further than is absolutely necessary. Some of the claims made by our opponents have, I think, been adequately met by evidence offered by others who later appeared on the stand, and no purpose would be served by repetition of what they have said.

There are a few matters, however, on which a statement in rebuttal seems justified. In order to save time, we have, so far as possible, incorporated this rebuttal presentation in exhibits in which the Commission may read the facts in detail. I shall, therefore, confine myself largely to introducing these exhibits and to describing briefly what they show.

### Limited Area Service

Early in Dr. Pickard's testimony, Dr. Pickard devoted several exhibits and some time to showing that, by the use of directional



antennas, it would be possible to establish 5 kw. stations at Seattle, San Francisco and Cincinnati, and to give service over very limited areas on certain clear channels. By reference, he incorporated certain exhibits which were prepared under his direction and which were introduced in evidence at hearings held about two years ago on Mr. Shepard's applications to establish new 5 kw. stations on 640 kc., occupied by KFI, Los Angeles, and 830 kc., occupied by KOA, Denver, both clear channels. I think it is important that the Commission have before it the actual recordings of the signals of KFI and KOA made at Boston under Dr. Pickard's supervision, which were introduced in evidence and on which he relied in the statements he then made. I therefore offer in evidence, as Rebuttal Exhibit No. 1 of the Clear Channel Group, a folder of photostats of those recordings and of exhibits based on them. These recordings are important because they show both KFI and KOA as delivering a substantially stronger signal at Boston in the period 1933-1934 than they are credited with in certain exhibits introduced by Dr. Pickard at this hearing, particularly Figures 25 and 29.

Some 65 recordings were taken by Dr. Pickard's staff on KFI over the period from November, 1933, to March, 1934. He used the 90% and 10% system at that time, instead of the 80% and 20% system used at this hearing. On the 10%, or interference, basis, the exhibits show an average of 0.140 mv. at the latest hour, but they range up much higher than this for particular nights. On the 90% (or service, basis, the exhibits credit KFI with a signal of from .083 to .085 mv. in January, and of about .068 to .073 mv. in February, and from .032 to .035 mv. in March. Incidentally, recordings offered in behalf of KFI in that same case showed substantially higher levels than these, but were made at other points such as on Long Island and in North Carolina.

### Similar Exhibits

Similar exhibits in the KOA case show that, on the 10% basis, KOA delivered a signal of 0.510 mv. in Boston on particular nights in November, 1934, 0.430 mv. in December, 1934, with averages of 0.280 mv. in November, 0.230 mv. in December, and 0.198 mv. in January. These exhibits show that KOA's "average" curve (I am not sure just what this means) was, at the latest hour, 0.190 mv. in November, 1934, 0.160 mv. in December, 1934, and about 0.082 mv. in January, 1935.

Other matters having to do with this suggested duplication of stations on clear channels have, in the main, been sufficiently covered both in the cross-examination of Dr. Pickard and in the testimony of other witnesses. Generally speaking, we do not differ substantially with the estimates which Dr. Pickard gave on cross-examination as to the geographical extent of the interference which the proposed duplicating stations would cause to the existing clear channel stations, and as to the extent to which the clear channel station would limit the duplicating station at night. We have, however, prepared several exhibits on this subject which I should like to offer in evidence simply by description.

Rebuttal Exhibit No. 2, prepared by Mr. Chambers, shows the portion of the country over which the proposed station at Seattle would cause nighttime interference to WJZ.

Rebuttal Exhibit No. 3 shows the computed ground-wave coverage of existing Seattle stations to the 0.500 mv. line, and Rebuttal Exhibit No. 4 shows their ground-wave coverage to the 1 mv. line. These are for the purpose of affording some idea of the service already available in this city.

Rebuttal Exhibits Nos. 5 and 6 serve the same purpose with regard to San Francisco.

### Unique in Contours

It is obvious from the map, I think, that both Seattle and San Francisco are rather unique in their physical contours. For the purpose of giving a graphic demonstration of this, our engineers have prepared Rebuttal Exhibit No. 7, which compares what can be done by use of a directional antenna on a 5 kw. station with what can be done with a non-directional antenna. You will see from this exhibit that it is impossible with a coastal city having more or less normal contours to serve as many people with a directional antenna as with a non-directional antenna and still give protection to an eastern clear channel station.

Exhibits 3 to 7, inclusive, were prepared for us by Mr. Glenn Gillett.

Because a vigorous attack was made on the post-card survey conducted by the Commission, we have made as thorough a study of that survey as time has permitted. I am sorry that we did not do so before. Not only do the cards themselves completely refute

the charges that have been made but they disclose a veritable mine of information as to listener habits, preferences, desires and complaints.

It has been impossible to examine and classify the cards from all the states, but enough has been done to indicate with virtual certainty what the results would be. In the first place, let me state positively and unequivocally that Nebraska is *not* a typical state. It is true that in Iowa, Kansas and Nebraska you will find daytime and limited-time stations operating with substantial power on clear channels and a substantial vote for certain of these stations. Generally speaking, you will not find this situation elsewhere in the entire country. Unfortunately, much of our tabulation was completed before this point about daytime and limited time stations was made and our exhibits show this only by implication, by reason of what is omitted rather than what is included. The implication, however, is, I think, convincingly clear.

### Rebuttal Exhibit

We were primarily interested in determining, if we could, how much of the voting was for so-called clear channel stations operating on duplicated channels. Our Rebuttal Exhibit No. 8 is an analysis of the returns for the States of Minnesota, Iowa, North Dakota and South Dakota. The obvious leaders are WCCO, WLS, WLW, WSM, WGN and WHO, all of them operating on clear channels. WCFL, operating at Chicago with 5 kw. on a duplicated clear channel, does not have a single vote in the entire area for either first, second, third or fourth place. WBBM and KFAB, duplicating on a clear channel, have so small a vote in all four states as to be negligible.

Rebuttal Exhibit No. 9 tells the other half of the story, out at Seattle, Washington, where KJR operates in duplication with WCFL. This is a map of the State of Washington, showing, by counties, the vote for KJR. In only six or seven out of some 38 counties does KJR have the lead, or in fact any substantial vote at all, and those counties are all clustered around Seattle. The southern portion of the State and the western two-thirds of the State show only a tiny handful of votes for KJR and these votes almost never list it as first choice. There are several counties in which it has no vote and several more in which it has only one vote.

I realize that the KJR-WCFL case is not a very fair example, since each station has power of only 5 kw. For proof that interference plays an important part in keeping down KJR'S vote, it is necessary to look to the listeners' comments, which I shall return to later.

Let us turn, therefore, to Rebuttal Exhibit No. 10 which is a tabulation of preferences for the States of Arizona, California, Idaho, Oregon, Montana, Nevada, Utah, and Washington and the territory of Alaska. So far as KJR is concerned, it shows that stations at Los Angeles and Salt Lake City lead it in its own State of Washington.

### Clear Channel Duplication

There are two duplicated clear channel stations at San Francisco, KPO with 50 kw. and KGO with 7½ kw. Notice that the only state in which either has a large vote is California; a detailed examination of the cards will show that most of this vote is within a relatively short distance of San Francisco. In general, the only other states in which either station receives what even approaches a substantial vote is directly to the north in Oregon and Washington, and there is no way of telling how much any of this reflects daytime coverage except from listener comments, to which I shall return presently.

The great inter-mountain area, comprising Arizona, Idaho, Montana, Nevada, and Utah, relies principally on four stations, the two at Los Angeles, KSL at Salt Lake City and KOA at Denver. This brings me to the one apparent exception, namely, KNX. When we take up the listener comments, you will, I think, see that this is not an exception because of the widespread complaint of interference to KNX by a Canadian station. The station in question is a little 1 kw. station in Quebec, Canada, operating, I am told, with less than 40% modulation.

Before turning to the listener comments, let us notice one more case of duplicated operation, WTIC with 50 kw. at Hartford, Conn., and KRLD with 10 kw. at Dallas. Rebuttal Exhibit No. 11 is a tabulation of the post-card preferences in Arkansas and Tennessee, at one end of the line between the two stations, and New York and Pennsylvania at the other. In Tennessee, KRLD gets only one vote, and that is for second place. In Arkansas it gets four votes for first place and a total of nineteen for all four



places. It is far out-ranked in Arkansas by WLW, WSM, WLS, WFAA-WBAP, and even WWL at New Orleans with only 10 kw.

On the other end of the circuit, WTIC has no vote for first place in Pennsylvania, only one for second, and only twelve votes in all. It has five votes for first place in New York, five for second place and thirty-five votes for all four places. Most of these come from the counties immediately adjacent to Connecticut. Hartford is only about 45 miles from the New York boundary and 110 miles from the Pennsylvania boundary.

### Tabulations for States

Rebuttal Exhibit No. 12 is a similar tabulation for the States of Maine, New Hampshire, and Vermont. In this connection, note that Hartford is only about 20 miles from the Massachusetts boundary, 65 miles from Vermont, less than 70 miles from New Hampshire and 130 miles from Maine. WTIC has only four votes for first preference each in Maine and New Hampshire and three in Vermont. It trails far behind WFAF, WJZ, and WABC of New York City and substantially behind WBZ. WLW leads it in two of the three states. And again we must remember that some or many of WTIC votes may be based on daytime reception.

Now let us turn to the most eloquent testimony of all, the listener comments. I regret that we did not undertake this before, so as to be able to give you the voice of the rural listener from all over the country. You have, in these cards, a mine of information as to what that listener wants and needs and what, in fact, he is begging you to give him. These comments obviously come from a cross-section of the farming population, the illiterate as well as the cultured, the prosperous as well as the poor. There is hardly an important question raised at this hearing that is not answered in forceful fashion on the cards.

We have been able to copy and classify the comments from only four states, Washington, California, Nevada, Utah and Iowa. They are incorporated in Rebuttal Exhibit No. 13. These states were picked for no particular reason other than that they were among those in which the listener preferences were tabulated and we did not have time to complete the others. Some obviously irrelevant comments were not copied but, in the main, the exhibit includes all the remarks that came from the five states in question. The extent to which rural listeners have gone to the trouble to make known their needs and desires is evidenced by the fact that the comments from California alone cover closely typewritten pages.

### Hard to Classify Comments

It was, of course, very difficult to classify the comments, particularly since many comments covered more than one subject. I arbitrarily selected six classifications: (1) Reception of clear channel stations and interference on duplicated clear channels; (2) Interference on other channels; (3) Local interference and static; (4) Class of programs preferred; (5) Advertising and (6) Miscellaneous. The first two of these headings were impossible to adhere to closely; they overlap and should be read together. So should the fourth and fifth headings.

Let us see what is said about interference resulting from duplicated use of clear channels, about reliance on clear channels for rural reception and about whether this daytime reception is satisfactory. I shall quote from only a few of a great many comments:

### Washington

KGO should have a clear channel. Best station on the Pacific Coast. (Pierce)

Canadian station interferes with KNX. (Garfield)

The stations of the CBS should be cleared for better reception, KSL being the only station for that chain heard at night without interference. (Klickitat)

We are wondering why it is that we can at times reach stations as far east as Cincinnati but have difficulty in obtaining the coast stations of Portland, Tacoma and Seattle. (Lincoln)

1050 KNX. You have to keep turning the dial up and down and some time it is such a muddle you cannot distinguish the conversation, hope this could be remedied. (Thornton)

Some other station interferes at times with KNX Hollywood. I think there are too many stations. (King)

There seems to be interference on KNX. (Ferry)

Can not get any reception in daytime. (King)

Seattle radio reception is very poor in this area. (Douglas)

Keep stations off KNX and give them the power. (Garfield)

KOMO and KJR which should really be our clearest stations

are almost impossible to listen to because of station interference. Also KFRC. (Lewis)

KNX is our favorite station but there is so much interference we have to sit by the radio and keep turning the dials. (Garfield)

Leave our clear air channels alone. The eleven western states should keep what they have for western stations. (Columbia)

KGW and KJR are strictly daytime stations. All local channels are worthless at night. After dark only cleared channels may be understood. WLW and WBT are always better than such local stations as KOIN or KEX. (Pacific)

### California

There is a lot of interference on KGO between 6-8 p.m. otherwise programs are coming in fine. (Stanislaus)

Interference with KNX impossible to get it at times. (River-side)

Interference on KGO and KYA. (Nopa)

Have a set in car and Station KPO is only one that I can get in daytime. Should be another station in Nor. Calif. with power enough to reach 90 or 100 miles north of Sacramento in daytime. (Butte)

KPO has the best programs but some nights there is interference which makes the reception blurred.

KGO and Dallas, Texas, too much interference. (Sutter)

No reception here whatsoever during the day. Fine at night, with no static to speak of. (Trinity)

Interference on KNX seriously impairs reception. This station carries a nightly weather service much desired by citrus growers. (Tulare)

KGO is interfered with badly. Some very good programs cannot be received because of this.

Interference is very great on stations KGO and KFRC after 5 p. m. (Calaveras)

Advise clearing of air channels by eliminating about 75% of low power, useless stations. Have high power stations in all widely separated, both in distance and air channels, particularly the latter. Also separate more widely in distance stations on the same chains or hook-up. (Contra Costa)

KGO and KNX have interference. (Fresno)

Too much interference on KPO at night causing garbled reception. (Glenn)

In this locality good reception does not start until evening, account distance from broadcast station. (Humboldt)

Reception usually possible at night only. (Inyo)

Nearer stations with greater power are preferred because of bringing in more noise in reaching for distant stations. There is lots of static in summer months. (Madera)

In this locality there is a lot of interference on KGO and KFRC. (Monterey)

Daylight reception is not so good here. (Modoc)

This part of Calif. and the part of Nevada near here has the poorest reception of any part of the country. Practically no reception in daytime. A more powerful station at Oakland would help. (Mono)

Some interference at night over KPO. (Placer)

Broadcast reception very poor in this locality. Only high powered stations available for clear reception. (Santa Barbara)

Daylight reception is very poor in Shasta county though from 6 p. m. on it is OK. We class KNX as a favorite as well. (Shasta)

### Iowa

KFAB interferes with WBBM daytime reception.

WLS does not have enough power. Market reports by Jim Poole are very important to all midwest cattle and hog feeders. (Wright)

A few more high power stations on a clear channel in various parts of the country without a local low power on the same band or frequency. (Wright)

With the 500,000 watts WLW is using we get them any time of day or night—recommend more 500,000 watts be authorized for more efficiency. (Wright)

Reception from above stations is excellent during the day only. Much interference and fading from WBBM during day. (WCCO, WMT, WHO, WOI) (Worth)

Why is it we have trouble getting programs over CBS? Have never been able to get the Will Rogers programs without other stations coming in and crowding the programs out. Had the same trouble with the Eddie Cantor program last night. Would suggest some channels be cleared to lessen interference. Very few stations on CBS are satisfactory after night. (Wayne)



We listen to stations all over the U. S. We like WLS on Sat. nights. Dallas, Denver and Nashville are other stations we are in on regular. Give the little stations more power in daytime and cut them off at night. (Lyon)

We need a station belonging to the "Blue" Network on a cleared channel somewhere in this region. Otherwise I believe our region is served splendidly. (Jasper)

Reception very good here with the exception of WBBM and KFAB 770. Both on in the daytime cause bad interference. (Benton)

#### Utah

KSL is only station we get in daytime. We get many stations better than KSL in evening. We often get clear reception from Dallas. (Duchesne)

Interference on KDYL, Salt Lake City, Utah, station. Interference on KNX, Hollywood, California station.

We listen to KSL in the day. It is the only one which comes in clear. (Emery)

KSL is our nearest broadcasting station but reception is poor. It is up one minute and fades off next. There is some station that interferes with KNX at times. (Piute)

Lots of interference on KNX. Drifting away on KOA. Strong KFI. (Cache)

KSL is only station we can get during the day. (Wasatch)

#### Nevada

We are unable to get any stations in the daytime. (Pershing)  
All stations come in clear in the evening and early morning but during the day—not so clear. (Nye)

Daytime reception very poor. KLX being about the only station coming in satisfactorily until 4 or 5 p.m. (Elko)

Unable to get CBS or KHJ and some interference on KSL. No clear channel for CBS in this part of the country. (Clark)

I have only read a fraction of the complaints relating to interference on the KNX channel. Some of it, in the northern part of Washington, is due to station separated from it by only 20 kc. but most of it, I think, must be ascribed to the little 1 kw. station with less than 40% modulation at Quebec, 2600 miles away.

What have the listeners to say with regard to regional channels? On this subject there are almost innumerable comments, of which the following are typical:

#### Interference on Other Channels

##### Washington

Remove WOW from KHQ's channel. Allow Western Columbia chain stations more power. (Pend Oreille)

The popularity of radio is at stake and if stations are not separated so a person can get what is wanted without interference it will be too bad. The Mexicans are the worst on our radio. KHQ, our main station, is about out in the evening. (Lincoln)

A lot of trouble with Omaha, Neb., interfering with KHW. (Whitman)

There are too many small stations that give no reception but interfere with stations of same wave length. (Whitman)

Too many stations on the same wave length. (Walla Walla)  
Eliminate that Mexican station which interferes with KHQ of Spokane. (Lincoln)

If ½ of stations were off air we would get real reception. (Wahkiakum)

Why not eliminate some of stations with same wave length. We have a lot of trouble by getting too many stations at same time. Cannot listen to radio very much on that account. (Thurston)

The main trouble with radio broadcasting, there are too many stations. (Whitman)

Stations are coming in better. Less interference than a month ago. I believe that there should be a law against stations broadcasting under same frequency. (Adams)

Cut down Omaha. It interferes with KHQ. (Whitman)

##### California

Too many small stations. (San Luis Obispo)

Too many small stations close together that interfere with each other. (San Diego)

Memo—Reception of KHJ not good after 6:00 p.m. (San Bernardino)

Fewer stations and better agricultural programs needed. (River-side)

Too many stations—causing one station to interfere with another. (Merced)

Should be less stations and better quality of programs. (Monterey)

Yours for fewer and better stations. (Napa)

Too many stations on each wave causing muchness. (Lancaster)

Kill perhaps 90% of broadcasting stations. Have a few powerful stations properly located and kill this rotten advertising. (Tehama)

#### Iowa

There are too many stations broadcasting at the same time. Resulting in interference. (Woodbury)

Less stations with more power. (Winnebago)

WOW ruined at night by some station. I think Mexico station. KOIL has a great deal of interference. (Montgomery)

WOW is interfered with by a Mexican station in the evenings. I think the call letters are XENT—but am not sure. Anyhow it is a decided nuisance. (Mills)

There is too much interference on quite a number of stations. Their wave length being too close together. (Jackson)

Entirely too many stations using identical wave length in the evening. (Johnson)

Too many stations. (Van Buren)

Too many stations. One half the stations would do better work. (Scott)

Too much interference between 1100 and 1500 kilocycles in the evening. (Plymouth)

We think there are too many stations; causing interference. (Muscatine)

Suggest a change of some kind between 1200 and 1500 kc. bands. (Muscatine)

There are too many broadcasting stations. (Buchanan)

#### Utah

There is too much interference on KDYL. (Summit)

From 1190 to 1400 kc. the stations are so numerous they cannot be separated. (Beaver)

Fewer stations—more power. (Millard)

Too much interference from small stations. (Utah)

#### Nevada

"Less broadcasting stations and better programs." (White Pine)

There are other stations we like to hear but most of the time too much interference from other stations. There should be more margin between stations. Cut out about half of them. (Churchill)

Can anyone justly say that these farmers have not given a fairly correct analysis of their radio troubles, or that they are not pretty well aware of what is necessary to cure them?

#### Program Preference

Now let us turn from the rather dry and technical subject of interference to the very human subject of program preferences. For the sake of the industry, I am going to pass over what is said on the subject of advertising. It is all in the exhibit.

The striking thing about these unsolicited comments on programs is not the occasional criticisms of too much jazz and crooning, too much grand opera and classical music, too much speaking, too little speaking, and so on. These comments more or less balance each other out. It is the virtual unanimity on what the rural listener wants and needs to the point of actual necessity. Over and over again he stresses his desire for news, market reports, weather reports, discussions of current events, and the like. From the State of Washington alone, there are 32 comments of this character out of 107 that relate to programs. They express deep appreciation of this sort of program and ask for more. Many of them stress their isolation, their desire to keep in touch with the outside world, and their inability to get newspapers in time. These people are really relying upon radio in scheduling their daily lives, as well as looking to it for entertainment, education and religious services. Incidentally there are not a few that indicate that they want such programs in the evening since they are too busy in the daytime to listen. No greater mistake could be made than to say that these rural listeners are asking merely for local news and local markets. They are asking for the sort that they have been receiving over clear chan-



nel stations, which they frequently name by call-letters and commend for their services in this direction.

### Wealth of Information

In behalf of the Clear Channel Group, I urge you not to let this wealth of information contained in rural listener comments go without study and analysis. We have been able to make a hurried survey of the cards from only five states. Except for this, we have no idea what you will find when the comments proceeding from the other forty-three states and Alaska will show. We are inclined to believe, however, that these comments are a much more trustworthy indication of the merits and defects of our present broadcasting service to rural communities than all the statistics, graphs and charts that an expert economist can devise.

One or two relatively minor points remain to be covered. Dr. Pickard laid considerable stress on the fact that regional stations now serve a daytime population of 245,292,649 persons and a nighttime population of 175,206,988 persons, counting duplications of regional assignments in the same area. I do not think he made it quite clear how he arrived at these figures. We have examined the tabulations that he submitted in evidence in support of his calculations and find that to a certain extent these totals require explanation. For example, there are in Brooklyn four 500 watt stations that divide time on 1400 kc. Each one of the four is credited with serving 7,130,446 persons by day or a total of 28,521,784 persons on this one assignment. Each is credited with serving 6,962,246 persons at night, or a total of 27,848,984 persons. The same process was followed with the three 1 kw. regional stations dividing time on 1300 kc., to which is also added the population coverage of a fourth station at Troy,

New York, dividing time with the three New York stations. Altogether these eight stations dividing time on two frequencies account for nearly 51,000,000 of Dr. Pickard's day population served by regionals, and over 49,000,000 of his night population. We have been unable to determine how he arrived at his calculation of the rural population served by these stations. Following his general method of reasoning, I suppose we would be entitled to claim that the daytime rural audience not receiving primary coverage in this country is not merely some 40,000,000 but forty times that, since there are, on the books, 40 clear channels on which they do not receive such service.

This concludes the rebuttal case for the Clear Channel Group. I should like at this point to make acknowledgment, in the name of the Group, of the invaluable technical assistance we have had, not only from Mr. Chambers, who has testified, but his partner, Mr. McNary; also Mr. Glenn D. Gillett, a consulting radio engineer at Washington, and an engineering committee composed of the chief engineers of three members of the Group, Mr. J. H. De Witt, Jr., WSM, Chairman, Mr. Carl J. Meyers, WGN, and Mr. R. J. Rockwell of WLW. They in turn have had the advice and cooperation of the chief engineers of all members of the Group. On the legal side, we acknowledge the helpful advice and counsel of the Honorable Swagar Sherley, who will argue the case in behalf of the Group.

In closing, I express the Group's appreciation of the fairness and patience with which this important hearing has been conducted.

### William B. Lodge

William B. Lodge of Columbia Broadcasting System who presented engineering data to the Commission on last Friday as already noted in the Daily Bulletin, suggested engineering standards for reclassification of broadcasting stations as follows:

Proposed	Designation		Suggested Name	Maximum Number Night Stations	Night Mileage Separation	Power (KW)		Groundwave Protection (MV/M) <sup>1</sup>	
	Present					Night	Day	Night	Day
A	Clear		Clear	1	Unduplicated	50	50	.5 <sup>e</sup>	.1
B	Clear		Dominant Zone	1 <sup>b</sup>	B-C 1500	5-50	5-50	.5 <sup>f</sup>	.1
C	Clear and H. P. Regional		Restricted Zone <sup>a</sup>	2	B-C 1500	5-50	5-50	3 <sup>g</sup>	.1
D	Regional		Regional	5 <sup>c</sup>	C-C 600	5	5	3 <sup>h</sup>	1
E	Regional		Sectional	10	900	5	5	8 <sup>d</sup>	1
F	Local		Local	60	d	1	1-5	4 <sup>d</sup>	2
					d	.25	.25		

#### NOTES:

a—In some cases, when a power less than 50 kw is used, directional antennas may be unnecessary to provide the specified protection to another Class C Station.

b—This does not preclude addition of a Class C Station.

c—This does not preclude addition of Class E Stations if required protection is provided all stations.

d—Night separation to be determined by daytime groundwave interference.

e—Except for an adjacent-channel Class A Station, for which suitable mileage separations must be developed.

f—Protection to a Class B Station from a Class C Station.

g—Protection to a Class C Station from either a Class B or a Class C Station.

h—For 5 kw operation.

i—Based on F.C.C. skywave curves (second hour after sunset) of allocation survey and these assumed antenna efficiencies: A, B, C 200 mv/m per kw; D 175 mv/m per kw; E, F 150 mv/m per kw.