Vernon A. Spring

ANNUAL REPORT OF THE FEDERAL RADIO COMMISSION

TO THE

CONGRESS OF THE UNITED STATES

FOR THE FISCAL YEAR ENDED JUNE 30, 1927

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CONTENTS

	Page
Assignment of commissioners	2
Public hearings helpful	3
Prominent persons offer suggestions	3
Questionnaire sent to all applicants	4
Canadian channels cleared	4
Aim and purpose of temporary permits	5
An open-door policy adopted	5
An appalling responsibility	6
Hard to measure conflicting claims	6
Public must guard freedom of air	7
Listeners to decide future course of radio	7
Power reduced in residential districts	8
"Fans" tell how to solve problems	8
New allocation of frequencies reduces interference	8
Short-term licenses issued	9
Consolidation of stations	9
Preliminary work of the commission	10
New law brought relief	11
Reallocation of all stations	11
Public hearing docket	12
General orders adopted	12
Extension of amateur and ship licenses	12
Public hearings	12
Extension of licenses	13
Broadcasting frequency band	13
Extension of broadcast licenses	13
Licenses for portable stations	13
Only half kilocycle deviation allowed	14
Plan to check frequencies	14
To prevent speculation in radio stations	14
Daytime power increased in special cases	14
Terminates temporary permits	15
Rules for hearings before commission	15
New licenses made effective June 15, 1927	16
Testimony as guide to commission	16
Interference hearings	16

ANNUAL REPORT OF THE FEDERAL RADIO COMMISSION FOR THE FISCAL YEAR 1927

FEDERAL RADIO COMMISSION,
Washington, July 1, 1927.

To the CONGRESS OF THE UNITED STATES:

The Federal Radio Commission submits herewith its report for the fiscal year ended June 30, 1927.

The passage of the radio act of 1927 presented a situation without parallel in the history of American executive departments. A wholly new Federal body was called into being to deal with a condition which had become almost hopelessly involved during the months following July 3, 1926, when it had become clear that the Department of Commerce had no authority under the 1912 radio law to allocate frequencies, withhold radio licenses, or regulate power or hours of transmission. The new law itself was, of course, totally untested, and the Federal Radio Commission was called upon to administer it with no clear knowledge as to the limitations which might be created by subsequent court action.

The act embraces the whole field of radio communication, but public interest was concentrated almost wholly on the single section of it devoted to radio broadcasting. The problems of point-to-point radio communication, of radiotelegraphy, of marine wireless, of power transmission, etc., though of vast importance, did not present such an urgent need for immediate action as the utter confusion within the broadcasting band. Public opinion assumed that the prime purpose of the law in creating the Federal Radio Commission was the immediate establishment of a sound basis, in the interest of the radio broadcast listener, for the orderly development of American broadcasting.

For this reason the work of the Federal Radio Commission from its first meeting, on March 15, 1927, up to June 30, was devoted almost exclusively to clearing up the broadcasting situation. With the physical capacity of the available channels, or wave lengths, already far exceeded by the number of stations actually in operation, and with no provision in the law for the Federal acquisition or condemnation of broadcasting stations in order to reduce the total number, the commission found it necessary to evolve some plan whereby, without any unconstitutional exercise of arbitrary authority, the listening public could receive more dependable broadcasting service, and whereby a gradual and orderly development could be counted on to bring about a progressive reduction in radio interference.

The following record, taken largely from the orders and bulletins of the commission, outlines the steps whereby this plan was evolved and put into execution. These steps were, in brief, four: First, the determination of the best scientific opinion through a series of public

hearings; second, the internal organization of the commission, handicapped as it was by lack of funds, to handle the enormous amount of documentary material which was required; third, the protection of the broadcasters against liability for unlicensed broadcasting until a suitable basis for the new licenses could be worked out; and, fourth, a complete new allocation of frequencies, power, and hours of operation for all of the existing 732 broadcasting stations to provide adequate local separation and a basis for the gradual elimination of distant interference.

Under the radio act of 1927 the Federal Radio Commission was formally organized on March 15, 1927, as follows:

Rear Admiral W. H. G. Bullard, of Media, Pa., commissioner from the second zone, chairman; Judge Eugene O. Sykes, of Jackson, Miss., commissioner from the third zone, vice chairman; O. H. Caldwell, of New York, N. Y., commissioner from the first zone; Henry A. Bellows, of Minneapolis, Minn., commissioner from the fourth zone; Col. John F. Dillon, of San Francisco, Calif., commissioner from the fifth zone.

Sam Pickard, chief of the radio division, Department of Agriculture, was engaged as acting secretary when the commission was organized. Mr. Pickard was made permanent secretary on April 20. 1927.

ASSIGNMENT OF COMMISSIONERS

Chairman Bullard took direct charge of the radio stations in the second zone, embracing Pennsylvania, Virginia, West Virginia, Ohio, Michigan, and Kentucky.

Commissioner Sykes took charge of the third zone, embracing North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi, Arkansas, Louisiana, Texas, and Oklahoma.

Commissioner Caldwell took charge of the first zone, embracing Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Delaware, Maryland, District of Columbia, Porto Rico, and the Virgin Islands.

Commissioner Bellows took charge of the fourth zone, embracing Indiana, Illinois, Wisconsin, Minnesota, North Dakota, South Dakota, Iowa, Nebraska, Kansas, and Missouri.

Commissioner Dillon took charge of the fifth zone, embracing Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Hawaii, and Alaska.

Due to the lack of funds, the commission was forced to open its offices at the Department of Commerce, where Secretary Hoover provided a suite of rooms formerly occupied by the Bureau of Navigation. It was possible to engage only a small office force, and it has been necessary to economize in every possible way.

When the Federal Radio Commission was inaugurated it found a chaotic condition prevailing in the radio field, for after Government control broke down in 1926 many broadcasters jumped their waves, seeking more desirable channels, regardless of their existing occupants. Even the channels reserved for Canada were appropriated, and split frequencies were used, with only a slight separation of from 1 to 5 kilocycles in many instances.

The problem confronting the commission was to try and bring order out of chaos by placing the 732 broadcasting stations on 89

wave lengths, so as not to create serious interference. The first act of the commission was to continue in force all radio amateur and ship licenses issued by the Department of Commerce and all coastal, point to point, technical, training, and experimental radio licenses, in order that attention might be concentrated on the pressing problems within the broadcasting band.

PUBLIC HEARINGS HELPFUL

For the purpose of providing opportunity for the presentation of general suggestions by the public and by qualified experts as to the methods for reducing interference within the broadcasting law, at its first meeting the commission arranged for a series of public hearings for March 29 to April 1, inclusive.

The subjects assigned for discussion were: Broadening the broadcasting band, limitation of power, reducing frequency separation, simultaneous broadcasting with the same frequency, chain broadcasting, division of time, consolidation of broadcasting service, limiting the members of broadcasting stations, and general discussion.

United opposition to widening the broadcasting band in order to accommodate more stations was expressed at the hearings by representatives of the radio art, science, and industry. Diverse views were presented regarding limitation of the power output, with the general opinion prevailing that this should be determined on the basis of area to be served by the respective stations. Stout opposition was registered also against reducing the frequency separation between channels from 10 to 7 kilocycles, while chain broadcasting in the main was indorsed. It was agreed that a division of time by stations is absolutely necessary to relieve to some extent the congestion on the ether channels.

PROMINENT PERSONS OFFER SUGGESTIONS

Among those who took part in the public hearings and made suggestions for the guidance of the commission were:

Paul B. Klugh, representing the National Association of Broadcasters.

Frank D. Scott, general counsel of the National Association of Broadcasters and the Radio Manufacturers' Association.

Jack Binns, treasurer of the Hazeltine Corporation.

R. H. Langley, treasurer of the Crosley Radio Corporation.

Dr. F. A. Kolster, Federal Telegraph Co. of California.

Dr. Alfred N. Goldsmith, chairman of the board of consulting engineers of the National Broadcasting Co.

C. Francis Jenkins, a noted inventor, of Washington, D. C.

Alfred P. Thom, jr., counsel for the American Railway Association.

George T. Stanton, chairman of committee No. 12, radio and wire carrier system, American Railway Association.

Lamden Kay, Atlanta, Ga., director of station operated by the Atlanta Journal.

L. P. F. Raycroft, vice president of National Electrical Manufacturers' Association.

Ray H. Manson, chief engineer, Stromberg-Carlson Telephone Manufacturing Co.

Robert H. Marriott, consulting engineer of New York, representing the Independent Wireless Telegraph Co.

L. W. Wallace, secretary of the American Engineering Council.

Paul Godley, radio engineer of Newark, N. J.

Samuel A. Waite, Worcester Telegram Publishing Co., Worcester, Mass.

L. C. F. Horle, Federal Radio Corporation, Buffalo, N. Y.

H. B. Hough, Fort Worth, Tex., radio announcer.

On April 24, 1927, the commission granted temporary permits to all broadcasters who held a license, or an extension thereof, issued by the Secretary of Commerce under the act of 1912. That was done mainly to allow stations to operate without rendering their owners liable to the penalties provided by the radio act of 1927.

AIM AND PURPOSE OF TEMPORARY PERMITS

Explaining the aim and purpose of the temporary permits, the commission issued this statement:

Although the temporary permits to broadcasting stations now being issued by the Federal Radio Commission are designed chiefly to protect broadcasters who were licensed under the 1912 law from incurring the penalties provided by the 1927 act for operating without a license, they will also provide an immediate measure of real relief to the radio listeners. When the new law went into effect there were 129 broadcasting stations operating on frequencies outside of the regularly authorized scale.

Originally licenses were issued by the Department of Commerce to use frequencies on a decimal basis, thereby maintaining the necessary separation of 10 kilocycles between frequencies. After July 1, 1926, however, a considerable number of stations selected intermediate frequencies, realizing that the Department of Commerce had no power to prevent such action. Each station thus operating has created interference on three different wave lengths—on the one on which it is actually operated and on the nearest regular wave lengths above and below.

As no temporary permits are being issued for these intermediate frequencies, and as the Federal supervisors are being instructed to watch carefully for any violation of the terms of these permits, all of the 129 stations which have been creating interference on two wave lengths besides their own will within the next week or 10 days be operating on frequencies where they will create interference only with other stations on the same wave length. In many cases it has not been found practicable, on account of interference, to move the stations to the nearest authorized frequency, and accordingly many of them have been assigned to frequencies in less congested parts of the broadcasting band.

Furthermore, the temporary permits state the maximum permissible power, and in a number of cases, particularly where stations are located in congested residential districts, this maximum power is being materially cut down in the interests of the listening public. Thus, although the temporary permits do not represent any complete attempt to solve the broadcasting problem, which will begin with the issuing of short-time licenses as soon as possible after April 24, the commission believes that these temporary permits will in themselves bring about a certain amount of immediate and very desirable relief to the radio listeners of the entire country.

AN OPEN-DOOR POLICY ADOPTED

An "open-door" policy was agreed upon by the commission. Commissioner Bellows was named director of publicity, and twice a week he held conferences with the Washington correspondents. On these occasions Commissioner Bellows outlined as far as practical the plans of the commission and explained action already taken. The keen interest in the problems before the commission was evidenced by the large attendance at the press conferences. Chairman Bullard in explaining the views of the commission with relation to its contact with the public said on one occasion:

The commission has no desire to arrive at any conclusions without taking the public into its fullest confidence, and while its membership is limited by law to five members yet the commission would like to consider that really every listener and every broadcaster, whether owner or operator, is a potential member for submitting constructive ideas to keep the other channels clear that just

as many stations may operate as possible. To use the words of a former President, the commission believes in "open covenants openly arrived at." The only motto we have is the doormat welcome, and there are no czars, as some newspapers like to suggest; we are all equals—the commission and the public—striving to solve many difficult problems and propitiate the ire of perhaps some disgruntled ones.

AN APPALLING RESPONSIBILITY

The spirit with which the commission approached its task was expressed by Commissioner Bellows in an address before the League of Women Voters at a dinner in Washington on April 29, 1927. At that time he said:

Congress has grasped the significance of radio as a vital force in American life and has recently enacted a law which in many ways is absolutely unique. I know of no other activity, conducted entirely through private enterprise, which has seemed to Congress so important and so complex in its problems as to require the creation of a new and separate branch of the Government exclusively for its regulation. Nor do I know of any other law which, like the radio act of 1927, sets up as the sole guide for the body charged with its administration the interest, convenience, or necessity of the public. That, in just four words, is what Congress has told us to do. We are to determine who shall and who shall not broadcast and how such broadcasting shall be carried on, simply in accordance with our conception of public interest, convenience, or necessity.

It is a rather appalling responsibility. The law tells us that we shall have no right of censorship over radio programs, but the physical facts of radio transmission compel what is, in effect, a censorship of the most extraordinary kind. A broadcasting station is in many ways akin to a newspaper, but with this fundamental difference there is no arbitrary limit to the number of different newspapers which may be published, whereas there is a definite limit, and a very low one, to the number of broadcasting stations which can operate simultaneously within the entire length and breadth of our country. This limit has not only been reached, it has been far overpassed; the demand from every section of the country is to cut down the number of broadcasting stations in the interests of the listening public.

What does this mean? It means that the Federal Radio Commission must say to this person, "You may broadcast," and to that person, "You may not broadcast; there is no room for you." It means, in actual practice, that we can not find suitable frequencies, or wave lengths, even for all of the stations already built and in operation, and that to several hundred applicants for new construction permits we can say only, "We are sorry, but we can see no present hope for you." We must say to John Doe, "You are rendering a service of great value in the interest, convenience, or necessity of the public, and you shall have a good wave length, plenty of time, and ample power," while we say to Richard Roe, "We find your service of less value to the public; so you shall have a poorer wave length, less time, and less power, or perhaps no wave length, time, or power at all."

HARD TO MEASURE CONFLICTING CLAIMS

We can not evade this responsibility, for it is the thing which Congress has told us we must do, and it is the thing which the people of America rightly demand shall be done. The variety of broadcasting service has become infinite; how shall we measure the conflicting claims of grand opera and religious services, of market reports and direct advertising, of jazz orchestras and lectures on the diseases of hogs?

It is for help in making such decisions, wisely and justly, that the Federal Radio Commission turns to you and to those who, like you, have the larger and truer vision of what radio can mean in our national life. Congress has said that we shall administer the radio law in the public interest; we in turn ask you to help us define public interest in such a way that this marvelous agency shall be free to play the great part it ought to play in building up and strengthening the understanding of our people.

Every broadcasting station exists for one sole purpose—the creation of public good will for its owners or for the sponsors of its programs. It will broadcast

whatever it believes will best create and maintain that good will. Very rightly, Congress has held that the broadcaster shall not be subject to governmental dictation as to the character of the material he sends out; the Federal Radio Commission, under the present law, can not and will not interfere with any broadcaster's right to control and censor his own programs. In that matter his relations are not with the Government, not with the commission, but with you. It is for you, the listeners, not for us, to censor his programs. It is for you to tell him when he is rendering, or failing to render, real service to the public, and you may be sure that he will listen to your voices.

PUBLIC MUST GUARD FREEDOM OF AIR

Above all, it is for you, not for us of the commission, to safeguard the so-called freedom of the air. Here is a problem which, because you are primarily interested in radio as a means of political education, touches you very closely. You would be quick to see the danger if there could be only a fixed and rather small number of newspapers and magazines published in the United States; you would rightly fear that the newcomer, the nonconformist, the representative of the minority, would have small chance to present his ideas to the public. This is just the situation which exists in broadcasting and which inevitably must continue to exist unless some fundamental change in the science of radio transmission comes about as the result of new discovery, to make possible a totally unforeseen increase in the number of stations which can broadcast simultaneously.

The radio law tells us that we shall not fix any condition "which shall interfere with the right of free speech by means of radio communication," and yet, if radio communication of any kind is to be possible at all we must sharply limit the number of broadcasting stations. The safeguarding of that right of free speech which is essential to intellectual growth lies in the hands of the broadcasters themselves, and, ultimately, in yours, for it is your good will that the broadcasters are seeking. If they and you do not so safeguard it—if you do not make it clear that your understanding of public interest, convenience, and necessity involves a very broad conception of the obligations of the broadcaster to his listeners—then it may be that Congress will feel that there is need for some amendment to the present radio law, an amendment calling for such Government regulation of radio programs as would manifestly be deplorable if it can possibly be avoided.

LISTENERS TO DECIDE FUTURE COURSE OF RADIO

The future of radio broadcasting is in your hands. The broadcasters exist solely to serve you as listeners; they charge you nothing and they ask only your good will. Congress, recognizing the full significance of the problem, has created this new Federal body, of which I have the honor to be a member, solely to administer the law in your interests. The vast scope of this new medium of transmitting ideas passes all comprehension. Your imaginations can not conceive, even though guesswork may boldly state numbers, of the audience which may listen to a single voice. And it is for you to say whether this potent agency shall be used rightly or wrongly. It is for you to say whether it shall degenerate into a mere plaything or develop into one of the greatest forces in the molding of our entire civilization. It is for you to establish close relations with the broadcasters who serve your communities and to show them that it is to their advantage to use their stations for the highest type of public service.

It is as such a mighty power for linking together all parts of our national life, for making better and wiser citizens of our great country, that the Federal Commission conceives of broadcasting. But we can do only what you tell us you want done. Our present problem is to clear the channels of radio communication; yours is to say what commodities of human thought, of reason, and of art shall be borne on those channels to millions of listeners. Our task is not an easy one; yours is, I believe, in the long run, even harder. But I know the broadcasters, many of them, well, and I know that they are eager for your help and cooperation. It is the glory of democracy that the will of the people rules, and to-day the Federal Radio Commission, created to serve the people of the United States, asks of you that you will do your utmost to create a demand for that kind of radio service which will make our country a better and happier and finer place in which to live.

POWER REDUCED IN RESIDENTIAL DISTRICTS

Owing to constant complaints of interference caused by broadcasting stations using too much power within residential sections, the commission issued an order on May 4, 1927, reducing the power of many stations in the large cities. To improve radio reception in New York, Chicago, and other large cities the commission decided that a separation of 50 kilocycles is necessary between local stations. All allocations were made on that basis.

From the beginning of its existence the commission has been literally swamped, almost daily, with letters and telegrams from listeners and broadcasters. At first the listeners confined themselves to suggestions as to ways and means to improve radio reception. Later many of them were enlisted by certain broadcasters in their fight for special consideration in the allotment of waves and power.

FANS " TELL HOW TO SOLVE PROBLEMS

Some of the proposals of the " fans " were very helpful to the commission, while others were fantastical and impractical. For the guidance of the commission, Ira L. Grimshaw, of the Department of Commerce, spent several weeks reading 3,000 letters and telegrams. His digest was very illuminating. In brief, it follows:

The following suggestions seem to have been made with considerable regularity and unanimity:

1. Whatever plan is followed, every station must remain exactly on its assigned wave length. A crystal or other control should be required to accomplish this purpose.
2. Stations logically should be classified into the big and the little, or the high power and the low power—the local and the national—the general and the special. The higher-grade stations should have greater range and signal strength and more desirable frequencies upon which to operate. They should be subjected to the minimum of regulation by the Government. The other class should take what is left. They should be purely secondary in everything but regulation.
3. Pirates should be given no consideration. Fundamentally they are persona non grata with the rank and file of radio listeners. They simply interfere with good programs.
4. Directly advertising wares must be either entirely prohibited or greatly restricted. It has been suggested daylight hours only be used for advertising directly.
5. All transmitters should be located outside of cities and congested areas, particularly outside of residential districts.
6. Telegraphic interference is either ruining or seriously jeopardizing broadcast reception in many specific localities. Foreign ships and wandering amateurs are charged with this high misdemeanor.
7. Chain broadcasting is either the greatest blessing or curse of broadcasting. The conclusion is dependent entirely upon either the location of the listener or his particular taste. It is noteworthy that but few suggest the elimination of chain broadcasting. Hours of operations and power limitations and specific frequencies come in for appropriate attention when discussing this subject.

NEW ALLOCATION OF FREQUENCIES REDUCES INTERFERENCE

After spending considerable time and thought on formulating important policies and basic principles the members of the commission mapped out a new allocation of frequencies and power which was announced on May 24 to become effective June 15, 1927.

The members of the commission found it possible to reassign the stations to frequencies which would, in their judgment, serve as a

sound basis for the development of good broadcasting to all sections of the country with comparatively little interference and heterodyning.

In working out the new national traffic system for broadcasting the commission's first consideration was to devise ways and means to improve radio reception throughout the United States. While large groups of stations—more than 100—were operating in two centers, New York and Chicago, they were given secondary consideration and were not allowed to dominate the situation.

Practically all stations were given new assignments, and listeners were obliged to scrap their old logs. It was found necessary to place several stations on the same wave and to provide for a division of time, in many instances, in order to give all qualified broadcasters a place on the air. For the most part the broadcasters accepted the new assignments with good grace and showed a fine spirit of cooperation. A few of them demurred and instituted court proceedings. But after a more careful study two of them announced that their suits had been withdrawn.

SHORT-TERM LICENSES ISSUED

In announcing the issuance of the new licenses the commission made the following statement:

The new licenses are all for 60 days, during which period the new allocations can be tested by actual practice. The law provides that any broadcaster who is dissatisfied with his allocation may have a public hearing before the commission, and at such a hearing his claim for a specific frequency or power will be considered in all its relations.

The commission recognizes that no scheme of reallocation which does not at the very outset eliminate at least 400 broadcasting stations can possibly put an end to interference. Accordingly, it regards the new allocations, not as creating in any sense an ideal broadcasting situation, but as providing for the first time a sound basis for radio service to the listener. With the cooperation of the public and the broadcasters, the commission believes that it will be possible to improve conditions progressively by an orderly process of actual experience.

Until such experience has been gained, both the listeners and the broadcasters are urged to exercise patience. The listener will, of necessity, have to relog his receiving set and may find considerable difficulty in locating all the stations he desires to hear. The broadcasters will doubtless find that many of their listeners are at first somewhat bewildered by the changes in frequencies. It is the belief of the commission, however, that within a very few weeks the material reduction of local or regional interference, the redistribution of frequencies so as to clear most of the broadcasting channels, and the decrease of power for stations in residential districts will combine to render radio reception in general very much better than it has been in a long time.

Special attention is called to the fact that the commission has no unused frequencies to allocate. Every broadcasting channel is filled to its apparent capacity and in some cases possibly overcrowded. Accordingly, any listener who wants a different allocation of frequency or power for his favorite station, or any broadcaster who seeks increased facilities for service, must be prepared to show specifically what other station should be required to give up its frequency or have its power reduced in order to make possible the desired reallocation.

CONSOLIDATION OF STATIONS

In an address before the National Press Club, on April 30, 1927, which was widely broadcast, Chairman Bullard said:

One of the plans whereby the commission hopes and expects to help the public to get better broadcasting service, and at the same time to bring about

far greater economy and efficiency in broadcasting service, is that of encouraging the consolidation of radio stations through the use of two or more sets of call letters for a single transmitter. This plan has actually been put into operation in a number of places, with admirable results, and the commission is definitely encouraging it as one way to provide better service for the listening public.

In reviewing the work of the commission up to that time, Chairman Bullard said:

When the commission began its work less than six weeks ago, it was apparent that the first requisite was complete and accurate information as to the actual broadcasting situation. The license applications on file with the Department of Commerce merely showed what the applicants asked for; they did not give any adequate information as to just what power and time each station was actually using, and in some cases they did not even indicate whether the station was actually in operation. The sworn statements made by the broadcasters in their new applications for license, together with the applications for construction permits and the detailed reports of the Federal radio supervisors, have given the commission a complete and accurate picture of the broadcasting situation as it really is to-day, and it is on the basis of this picture that the commission is going ahead with the task of reassigning frequencies, power, and time. Remember, that all this assembling of information had to be done by an entirely new body, with no previously existing staff and with very limited funds. Considering the difficulties which had to be overcome, the commission feels that these six weeks have shown a very satisfactory amount of progress and give the listeners just reason to hope and believe that within the next month or two the commission will have gone far toward solving the problem of untangling the traffic on the channels of radio communication.

Although the temporary permits now in force were issued primarily to save the broadcasters themselves from liabilities under the law, they have resulted in a most gratifying improvement in broadcasting conditions. The six waves reserved for Canada have been entirely cleared, and thus an international radio problem has been very largely solved. One hundred and twenty-nine stations which were operating on "split kilocycle frequencies"—that is to say, on wave lengths where each station caused heterodyning both above and below itself—have been reallocated. Maximum power allowances have been materially cut down for stations located within congested residential districts and in cases where acute interference was reported. Although the definite nation-wide reallocation has yet to be carried out, the progress thus far made is most encouraging and helpful.

PRELIMINARY WORK OF THE COMMISSION

Reviewing the preliminary work of the commission while discussing "The big job yet to be done in radio," Commissioner Caldwell, in an address in Chicago June 11, 1927, said in part:

We have had about six years of radio broadcasting. It was in 1921 that the first station (KDKA) started operating, and soon other stations followed. From 1922 to the middle of 1926 radio grew and grew in popularity, sales mounted, and a great new industry was in the making. Then something happened.

In July, 1926, just 10 months ago, the Attorney General of the United States rendered his famous opinion that the Secretary of Commerce, under the radio law of 1912, was without power to control the broadcasting situation or to assign wave lengths. Thus, after five years of orderly development, control was off. Beginning with August, 1926, anarchy reigned in the ether.

As the result many stations jumped without restraint to new wave lengths which suited them better, regardless of the interference which they might thus be causing to other stations. Proper separation between established stations was destroyed by other stations coming in and camping in the middle of any open spaces they could find, each interloper thus impairing reception of three stations—his own and two others.

Instead of the necessary 50-kilocycle separation between stations in the same community, the condition soon developed where separations of 20 and 10 kilocycles, and even 8, 5, and 2 kilocycles, existed. Under such separations, of

course, stations were soon wildly blanketing each other while distracted listeners were assailed with scrambled programs.

Wave lengths assigned to Canada were violated, in spite of repeated warnings from the Government and even personal appeals from members of the President's Cabinet that national good faith and international good will were at stake. Meanwhile 250 new stations had injected themselves into the already overcrowded situation and undertook to find perches on which to light, without respect to the existing stations.

Some of the older stations also jumped their power, increasing 5 to 10 times their output, and as a result delivering terrific heterodyne interference to distant stations that had been previously undisturbed under the orderly radio pattern developed by the former supervising authorities and heterodyne interference between broadcasters on the same wave length became so bad at many points on the dial that the listener might suppose instead of a receiving set he had a peanut roaster with assorted whistles. Indeed, every human ingenuity and selfish impulse seemed to have been exerted to complicate the tangle in the ether.

NEW LAW BROUGHT RELIEF

On February 23 of this year Congress passed the new radio law of 1927, putting great powers of radio control in the hands of a commission appointed by the President to serve full time for one year in clearing up the radio confusion. For the first 60 days of the law, or until April 23, no penalties were enforceable; but on April 24, when fines up to $5,000 and penitentiary sentences up to five years became effective, the commission actively put into effect its plans and operations to clear out the interference.

The first steps were (*a*) to transfer all stations to authorized channels on "even tens" of kilocycles, (*b*) to clear the Canadian waves, and (*c*) to combine interfering stations and tuck them in wherever possible in the spectrum, in order to keep them in operation without interfering with those stations who had remained faithfully on their assigned channels. This was accomplished for the period of the temporary permits, beginning April 24.

REALLOCATION OF ALL STATIONS

During the meantime, with the public given partial relief, it was possible for the commission to make a careful study of the situation, and by painstaking planning arrange for the second big step—a reallocation of all stations in the best interests of the listening public. When this reallocation took effect listeners found that (*a*) for each locality local stations were well distributed along the dial, with minimum separations of 50 kilocycles; (*b*) stations were recognized in terms of position and time on the basis of their demonstrated capacity to serve the public; and (*c*) heterodyne interference between distant stations, in general, diminished. These improvements have been accomplished by repacking the channels accord'ng to an orderly plan, actually increasing the capacity of the 89 channels available, in much the same way that a lumber bin which appeared full when lumber had been carelessly thrown into it from all directions can hold considerably more when the lumber is packed in an orderly fashion and the former wasted open spaces avoided.

Sixty-day licenses issued for June 15 to August 15, and the operation of the new allocation will be carefully watched in the light of actual experience during this period, so that necessary changes can be made where interference is experienced. Such actual experience is necessary in view of the irregular and unpredictable transmission in different directions which almost every station sends out. If the ordinary station's radiation went out equally in all directions, making the station's interference area a big circle, the task of fitting stations together without interference at minimum distances would be simple; but as every listener knows, some stations are unaccountably heard for many miles in one or more directions while being shut off by natural "barriers" in other directions. Advantage must be taken of all these curious unpredictable phenomena and adjustments made before the new station set-up will be really working at its best. Here only actual experience, and not engineering theory, can be the guide. The commission is therefore likely to continue issuing only short-term licenses of 60 to 90 day duration on through the winter months, in order to test out the transmission conditions during the cold-weather period of greatest radio effectiveness, before any long-term licenses are granted.

PUBLIC HEARING DOCKET

Under General Order No. 12, the commission held 16 hearings before June 30, 1927—the period covered by this report—of broadcasters who were dissatisfied with the allocation as to frequency, power, or time division granted them under the 60-day licenses, effective June 15. Because of his legal training and experience, Commissioner Sykes presided at the hearings at the request of Chairman Bullard. The first hearing was held on May 27, 1927, upon application of Station WJAZ, Mount Prospect, Ill., which sought a change in frequency from 1,140 kilocycles to 770 kilocycles. That application was denied. The other hearings, with decisions of the commission, follow:

May 31.—Station WGS, New York, asked for a change in frequency from 1,170 kilocycles to 710 kilocycles. Denied. Station WGL, New York, assigned 1,170 kilocycles, sought 1,070 kilocycles. Denied.

June 1.—Station WDWM, Newark, N. J., licensed to operate on 1,270 kilocycles, sought 1,070 kilocycles. Application denied.

June 2.—Station WGES, Chicago, assigned 1,240 kilocycles, sought 920 kilocycles. Denied.

June 8.—Station WGCP, Newark, N. J., assigned 1,070 kilocycles, sought 810 kilocycles. Denied. Station WLWL, New York, assigned 1,020 kilocycles, sought 810 kilocycles. Approved.

June 10.—Station WBT, Charlotte, N. C., assigned 500 watts power, sought 1,000 watts. Application approved for period 7 a. m. to 7 p. m. Station WGBI, Scranton, Pa., assigned 100 watts, sought 500 watts. Granted 250 watts.

June 14.—Station WBBR, Brooklyn, Assigned 1,170 kilocycles, sought 660 kilocycles. Denied.

June 21.—Station WCGU, Sea Gate, New York Harbor, assigned 1,420 kilocycles, sought 970 kilocycles. Denied. Station WBRS, Brooklyn, N. Y., assigned 1,420 kilocycles, sought 760 kilocycles. Denied.

June 22.—Station WBNY, New York, assigned 1,270 kilocycles, sought 1,070 kilocycles. Denied. Station NHAP, New York, assigned 1,270 kilocycles, sought 1,070 kilocycles. Denied. Station WGBB, Freeport, N. Y., applied for permission to remain at assigned frequency of 1,220 kilocycles. Granted.

GENERAL ORDERS ADOPTED

General orders adopted by the commission outline succinctly the policies agreed upon as the most effective way to put into effect the radio act of 1927. Those approved up to July 1, 1927, follow:

EXTENSION OF AMATEUR AND SHIP LICENSES

[General Order No. 1, March 15, 1927]

The Federal Radio Commission, under authority of the act of February 23, 1927, hereby extends the force and effect of all radio amateur and ship licenses issued by the Department of Commerce from and after this date until further orders from this commission, this extension to be of the same force and effect as though new licenses had been issued by this commission, subject to such general regulations as this commission may from time to time issue.

PUBLIC HEARINGS

[General Order No. 2, March 15, 1927]

For the purpose of providing opportunity for the presentation to the Federal Radio Commission of general suggestions as to methods for reducing interference within the broadcasting band, but not for hearing individual claims or complaints, the Federal Radio Commission hereby sets the dates of Tuesday,

March 29, Wednesday, March 30, Thursday, March 31, and Friday, April 1, for public hearings, to be held in the offices of the Federal Radio Commission, Commerce Building, Washington, beginning each morning at 10 o'clock.

EXTENSION OF LICENSES

[General Order No. 3, March 29, 1927]

All coastal, point-to-point, technical and training, and experimental radio-station licenses in force on the 22d day of February, 1927, are hereby extended until the further order of the commission.

BROADCASTING FREQUENCY BAND

[General Order No. 4, April 5, 1927]

In view of the manifest inconvenience to the listening public which would result from any immediate widening of the frequency band devoted to radio broadcasting, the Federal Radio Commission will not at this time allocate to broadcasting stations frequencies other than those between 550 and 1,500 kilocycles (545.1 to 199.9 meters), except on specific request of such stations. It believes, however, that the band between 1,500 and 2,000 kilocycles (199.9 to 149.9 meters) should, so far as may be practicable, be held open for experimental work in broadcasting and allied forms of radio service, to the end that, with the further development of the art, this band may be eventually made available for broadcasting, whether for the ear or the eye, if it shall prove particularly well adapted to such type of service to the public.

EXTENSION OF BROADCAST LICENSES

[General Order No. 5, April 5, 1927]

On Sunday, April 24, at 11.59 p. m., terminates the period of 60 days during which, under section 40 of the radio act of 1927, no holder of a license or an extension thereof issued by the Secretary of Commerce under the act of August 13, 1912, is subject to the penalties provided in the radio act of 1927 for operating a station without a license.

The Federal Radio Commission will issue a temporary permit to operate a radio broadcasting station, good only until final action is taken by the commission on the application for license, to each holder of a license or an extension thereof from the Secretary of Commerce under the act of August 13, 1912, whose application for a license under the radio act of 1927 has been received by the Federal Radio Commission on or before April 24, 1927, and such temporary permit shall, until withdrawn, be considered as having the force and effect of a license in so far as the penalties provided in the radio act of 1927 are concerned.

After April 24, 1927, any person operating a radio broadcasting station otherwise than under the authority of such a temporary permit or a license issued by the Federal Radio Commission will be deemed by the commission to be operating a broadcasting station without a license.

LICENSES FOR PORTABLE STATIONS

[General Order No. 6, April 26, 1927]

Since the exact location of any radio broadcasting transmitter is an essential feature of the license, the Federal Radio Commission, as already announced, will not consider any application for a broadcasting license, except for a very limited period of time, in which the permanent location of the transmitter is not specified. However, for the purpose of enabling so-called portable stations which were duly licensed under the law of 1912 to render service to the public during the spring and summer months, the Federal Radio Commission will issue to such stations licenses for not more than 120 days, to operate with not more than 100 watts power output, and with frequencies of 1,470 and 1,490 kilocycles only. Any such permit may be revoked by the commission at any time if it be shown that the operation of the station thus licensed is causing interference prejudicial to the public interest.

ONLY HALF KILOCYCLE DEVIATION ALLOWED

[General Order No. 7, April 28, 1927]

The Federal Radio Commission hereby fixes a maximum of one-half kilocycle as the extreme deviation from authorized frequency which will be permitted to any broadcasting station operating under permit or license issued under the terms of the radio act of 1927. The Department of Commerce is hereby requested to notify its proper agents immediately of this order and to direct them to report promptly any apparent violations thereof. Maintenance of the assigned frequency within the limits herein prescribed is the duty of each radio broadcasting station, and violation of this order will be deemed by the Federal Radio Commission cause for revocation of license under section 14 of the radio act of 1927.

To facilitate the execution of this order, each radio broadcasting station is hereby directed, effective 12.01 a. m., local time, Monday, May 9, to announce twice each day, at the beginning and end of its program, that it is broadcasting on a frequency of —— kilocycles by authority of the Federal Radio Commission.

PLAN TO CHECK FREQUENCIES

[General Order No. 8, May 5, 1927]

For the purpose of facilitating a more accurate check on station frequencies both by the Federal radio supervisors of the Department of Commerce and by the public, each radio broadcasting station, licensed under the radio act of 1927, is hereby directed to announce its call letters and location as frequently as may be practicable while it is broadcasting, and in any event not less than once during each 15 minutes of transmission.

It is understood, however, that this requirement is waived when such announcement would interrupt a single consecutive speech or musical number, and in such cases the announcement of the call letters and location shall be made at the beginning and end of such number.

This order becomes effective at 12.01 a. m. Wednesday, May 11, 1927, and will remain in force until further notice.

TO PREVENT SPECULATION IN RADIO STATIONS

[General Order No. 9, May 13, 1927]

Section 12 of the Federal radio act provides that no station license shall be transferred or assigned, either voluntarily or involuntarily, without the consent in writing of the licensing authorities.

It is hereby ordered that any person desiring to purchase a broadcasting station shall make application for a new license to the commission on the application blank forms. In addition thereto, the proposed seller or assignor of the station must also write a letter to the commission to the effect that he desires to sell or transfer this station to the applicant for the above-named license and wishes a license issued to this applicant in place and instead of himself.

The commission may either grant or refuse the license or grant with modification as to frequency and power.

DAYTIME POWER INCREASED IN SPECIAL CASES

[General Order No. 10, May 18, 1927]

For the purpose of facilitating wider and better reception of daytime service programs, such as those of educational and religious institutions, civic organizations, and distributors of market and other news, the Federal Radio Commission will consider applications from holders of broadcasting station licenses for the use, between the hours of 6 a. m. and 6 p. m. local time only, of a larger power output than is authorized by such licenses. Applications for this daytime privilege must be made to the commission in writing and shall specify the maximum daytime power to be used, the approximate daytime broadcasting schedule, and the reasons why, in the applicant's estimation, the granting of such privilege would be in the interest, convenience, or necessity of the public.

In each case where such privilege is granted the Federal Radio Commission will notify the radio division of the Department of Commerce, requesting this division, through the Federal radio supervisors, to check carefully the use of power by such station, both day and night. Any failure to revert to the power specified in the license between 6 p. m. and 6 a. m. will be held cause not only for immediate withdrawal of the daytime power privilege but for reduction of the maximum power authorized for use at night.

TERMINATES TEMPORARY PERMITS

[General Order No. 11, May 21, 1927]

The Federal Radio Commission hereby orders that all temporary permits to operate radiobroadcasting stations under the terms of the radio act of 1927 shall terminate at 3 o'clock, local standard time, on the morning of Wednesday, June 1, 1927, and that thereafter all radiobroadcasting stations subject to the provisions of the radio act of 1927 shall be operated solely in accordance with the provisions of the licenses issued as of June 1, 1927, by the Federal Radio Commission.

RULES FOR HEARINGS BEFORE COMMISSION

[General Order No. 12, May 26, 1927]

In all cases in which the 60-day license, effective June 1, offered the licensee is not in accord with the application, the applicant is hereby notified that the commission has not determined that public interest, convenience, or necessity would be served by the granting of such application.

Any applicant for license who is dissatisfied with the allocation as to frequency, power, or time division granted him in the 60-day license issued by the commission which is effective June 1, and who desires a hearing upon his application, may notify the commission in writing of such desire by June 15, 1927.

The commission will thereupon fix a time and place for such hearing. Pending the hearing and the decision thereon by the commission, the applicant will be permitted to broadcast only under the terms and conditions and in accordance with his 60-day license issued by the commission.

The applicant for license may introduce at the hearing before the Federal Radio Commission any witnesses he may desire. In addition thereto, he may introduce any affidavits relating to relevant facts.

The fact in issue is whether or not public interest, convenience, or necessity will be served by granting to the applicant a license upon the wave length or frequency requested in the application, or in the application as amended in the request for hearing, and with the power therein requested and the place for said station therein designated.

All persons interested in the granting or refusal of the application and the frequency therein applied for, including other licensees authorized to use the frequency requested, licensees upon frequencies where interference is claimed, other applicants for the same frequency, and representatives of the public in general, may appear and will be heard upon any relevant matters. The commission may likewise introduce witnesses or affidavits.

All applications for licenses or copies thereof on file with the commission may be introduced in evidence at the hearing. All temporary permits, temporary licenses or copies thereof, and other records on file with either the Federal Radio Commission or the Department of Commerce may be introduced in evidence at the hearing without any further verification.

The witnesses introduced at the hearing, before testifying will be sworn by a member of the commission. The commission will pass upon the relevancy and competency of the testimony offered to be introduced before it. After the conclusion of the hearing and within a reasonable time the commission will render its decision in writing.

The testimony and proceedings at these hearings will be taken down by shorthand reporters designated by the commission, so that the entire record of the proceedings and hearings may be preserved in case of appeal, as provided by section 16 of the radio act of 1927. All hearings provided for by this order will be public and will be held at the offices of the Federal Radio Commission in Washington.

NEW LICENSES MADE EFFECTIVE JUNE 15, 1927

[General Order No. 13, May 28, 1927]

In consideration of the fact that a certain amount of time is required in many cases for making the changes of equipment required by changes of station frequency and for securing suitable control equipment to maintain frequency without serious variation, the Federal Radio Commission hereby amends General Order No. 11, dated May 21, 1927, to read as follows: "The Federal Radio Commission hereby orders that all temporary permits to operate radio broadcasting stations under the terms of the radio act of 1927 shall terminate at 3 o'clock, local standard time, on the morning of Wednesday, June 15, 1927, and that thereafter all radio broadcasting stations subject to the provisions of the radio act of 1927 shall be operated solely in accordance with the provisions of the licenses issued as of June 1, 1927, by the Federal Radio Commission."

The Federal Radio Commission hereby orders that all licenses for the period of 60 days, issued as of June 1, 1927, shall not become effective until 3 o'clock, local standard time, on the morning of Wednesday, June 15, 1927, and shall continue in effect unless previously revoked or modified by order of the commission, for a period of 60 days after June 15, 1927.

TESTIMONY AS GUIDE TO COMMISSION

[General Order No. 14, June 3, 1927]

Testimony introduced at any hearing relative to any particular station or any particular frequency will, when relevant, be considered as testimony by the commission at any of its subsequent hearings. Applicants may examine these records.

INTERFERENCE HEARINGS

[General Order No. 15, June 7, 1927]

For the purpose of providing an orderly method for the reduction and eventual elimination of interference between radio broadcasting stations operating on the same or on closely adjacent frequencies, the Federal Radio Commission announces the following procedure: "At any time after July 15, 1927, any radio broadcasting station operating under license from the Federal Radio Commission may file with the commission an affidavit certifying that unreasonable and injurious interference with its signals is being caused by the simultaneous operation of another radio broadcasting station, the name or call letters of which must be specified in the affidavit. The affidavit must likewise specify not less than two occasions on which such interference was observed, with the name and address of the person making each of such observations, the type of receiving set used, and the date and hour thereof. On receipt of such affidavit, and if in the judgment of the Federal Radio Commission the interference complained of is actually unreasonable and injurious to the affiant, the commission will appoint a date for a hearing, at its convenience, will notify thereof the parties interested, and on the basis of the testimony presented at such hearing will order such changes of frequency, power, or hours of operation as may appear best to serve public interest, convenience, or necessity."

Respectfully,

W. H. G. BULLARD,
Chairman Federal Radio Commission.

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