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No. 752

[Handwritten signatures and initials]

August 24, 1934.

RADIO-OPTICS DEPENDENT UPON TECHNICAL ADVANCES

The latent possibilities of the radio-optical waves, those which range from 1 centimeter to 1 meter in length, are most promising, but their fuller realization is conditioned on continued technical advances, in the opinion of W. D. Hershberger, Associate Physicist at the Army Signal Corps Laboratories at Fort Monmouth, N. J. "If the progress made during the past 5 years is indicative of what may be expected in the future, the field will assume an increasing importance", Mr. Hershberger explains. "The use of radio-optical equipment for portable beacons for aircraft, for limited range directional signaling in all varieties of atmospheric conditions, as well as other uses which suggest themselves, can readily be foreseen.

"The reason for the popular interest arises partly from the experiments of Marconi whose international fame assures any project associated with his name wide publicity, and partly from the fact that many people link television, if and when it leaves the laboratory, with the new communication channels being made available."

"Claims made for these channels include freedom from static, fading, and skip-distance effects."

It is possible to build a directional radiating system for use at these wavelengths which is small enough to be portable and at the same time may be pointed in any direction.

"An efficient use is thus made of power, and some degree of secrecy is attained since transmitter and receiver must be properly lined up", Mr. Hershberger continues.

"We should, however, not be misled about the number of new channels thus made useful in the radio-optical region. It is true that in the limited range between 1 and 10 centimeters we find 7,000 times as many channels as in the entire broadcast band. However, simultaneous use of such channels by apparatus in close proximity presupposes means for stabilizing frequency which are at present totally lacking. Non-interference in this region will perhaps depend not so much on the existence of a host of new channels no one will be able to utilize with present-day technique, as on the fact that limited ranges and beam transmissions are employed. Yet, if broadcasting at considerable power is done as is proposed by television engineers, the whole region may readily become congested. In such a case, the prime need would be means for stabilizing frequency and receiving equipment capable of distinguishing between neighboring frequencies. In the absence of such a technique, it is futile to speak of new channels.

"Occasionally the suggestion is made that radio-optical equipment could well replace telephone lines or cables. For single-channel operation in one direction at a time such equipment would no doubt be quite successful, although possessing the disadvantage that, if intermittent operation is all that is desired, it would be necessary that the detectors and receiving amplifiers be kept in operation continuously to permit calling at any time with consequent battery and tube upkeep."

A commercial link operating on 18 centimeters has been in use for some time across the English Channel for intercommunication between the airports Lympne and St. Inglevert. In particular the purpose of this installation is the prompt handling of information on the departure and arrival of civil aircraft. The receiving apparatus works directly into printers at each end and of course may be used for voice. Simultaneous operation in both directions is secured by duplication of all apparatus with one set working at 17 centimeters and the other at 17.5 centimeters. The link has been in experimental operation since 1931. Parabolic mirrors 10 feet in diameter are used to concentrate the radiation. These mirrors are supported by towers 66 feet high on the French side and given an elevation of 43 feet on the English side so as to afford an unobstructed line of sight between stations. This installation marks perhaps the first commercial use of radio-optics.

In Germany, Hollmann and his group report ranges of the same order of magnitude as those obtained by Marconi.

Uda, in Japan, obtained ranges of 30 kilometers at 50 centimeters as early as 1930. The Japanese appear to prefer magnetrons for generation of radio-optical waves and antenna arrays to mirrors for concentrating the radiation.

The Westinghouse Co. displayed a novel piece of radio-optical equipment at the "Century of Progress" in Chicago. The generator of oscillations was their half-watt, 9-centimeter magnetron suitably modulated with voice or tone. The receiver employed a crystal detector for demodulation of the 9-centimeter waves. A 24-inch mirror served to concentrate the waves. In the demonstration for the public, voice transmission from one balcony to another was shown as well as reflection of the waves from a plane metal mirror. An engineer speaking for the company describes this apparatus, reports that a range of 1 mile has been obtained, and that ranges of the order of 20 miles are anticipated in the future.

"Mention must be made of the work of Radio Corporation of America radiotron engineers who, by decreasing in proportion the dimensions of all electrodes, have produced the 'acorn' or 'shoe-button' tube", Mr. Hershberger concludes. "The time of electron transit has been reduced in these tubes to the extent that they are used as oscillators in conventional circuits at 30 centimeters and as r-f amplifiers at 1 meter with a gain of 4 per stage. The tubes are too small to permit sufficient plate dissipation for the generation of much power but they promise a great deal as amplifiers and detectors."

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COMMISSION TO MARK TIME UNTIL AFTER LABOR DAY

With most of the Commissioners out of town for some reason or another, the Communications Commission is not likely to act upon any important matters until after Labor Day, September 3rd. Chairman E. O. Sykes has gone to Mississippi for the primaries. In the absence of Col. Thad Brown, Acting Chairman, who is on a vacation at Swampscott, Mass., Judge Sykes did not appoint an Acting Chairman, but simply asked Commissioner Hampson Gary, who is to remain in Washington, to "pinch hit" for him, if necessary.

Paul Spearman, General Counsel of the Commission, and George H. Hill, an Examiner, both natives of that State, have likewise gone to Mississippi. There is a close contest for Senator down there between Senator Hubert D. Stephens and former Governor Theodore G. Bilbo. Although all those from Mississippi on the Communications Commission are said to favor Senator Stephens, however, it is a difficult position for Judge Sykes because it was Governor Bilbo who appointed him a Justice of the Supreme Court of Mississippi, and it was Senator Stephens who had him appointed to the Radio Commission. This is only the second visit to Mississippi of Judge Sykes since his appointment to the Commission seven years ago. The primaries will be held Tuesday, August 28th.

Commissioner Paul A. Walker has again returned to his home in Oklahoma. This time he hopes to bring his family back with him to Washington and establish his residence in the Capital.

Commissioner Norman S. Case will probably make a short visit to Providence and Commissioner George Henry Payne to New York.

These absences were made possible, it was said at the Commission, by the fact that most of the appointments at the Commission have been made, such as Chief Engineer, General Counsel, etc., and because the other employees of the old Radio Commission have now been placed upon a permanent basis with the new organization. Many guesses have been made as to the probable appointees of Assistant Counsels, Examiners, and others, but it is likely that these appointments also will go over until after Labor Day.

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COMMUNICATIONS COMMISSIONERS TIMID BEFORE MICROPHONE

Apparently not warned in advance that they were to go on the air at the dinner of the American Section of the International Committee on Radio, in Washington, last Tuesday night, members of the Federal Communications Commission proved so shy that William R. Vallance, of the State Department, and John W. Guider, in charge of the affair, had a difficult time filling out the half-hour NBC had allotted to them. Two of the Commissioners, Case and Stewart, when introduced, simply got up and bowed, which didn't mean much to the invisible audience. One of the Commissioners later in the evening was lulled completely to sleep by a technical address.

Judge Sykes, Chairman of the Commission, was the only Commissioner who made a real speech. He said he was delighted with the personnel of the new Commission and that they all had but one idea which was - adequate communications at reasonable rates.

The Judge told of a conversation he had with President Coolidge when the latter appointed him to the Commission.

"Mr. President", Judge Sykes said, addressing Mr. Coolidge, "I want to tell you very frankly I know nothing about radio. In fact, I have never even owned a radio set. I am just a plain country lawyer and I don't know whether or not I can make good on the Radio Commission."

"I knew you were a lawyer", the late President replied. "There are others on the Commission who know about radio. I thought it would be a good idea to put on one lawyer to keep them straight."

Judge Sykes said that the Radio Commission had been reversed almost less than any other Commission in the Federal Government.

In introducing Commissioner Gay, Mr. Vallance recalled the time when Mr. Gary was the American Consul at Cairo in Egypt. This brought to his mind an incident which occurred at the time the Foreign Service Act was passed. Each American Consul was advised of this by cable and told to take the oath in the presence of the American Ambassador.

"At that time I was in Mexico", said Mr. Vallance, who is now in charge of the radio treaty work in the State Department, "and there was a mistake in transmitting my message so that it read that I was 'to take a bath in the presence of the American Ambassador.'"

Dr. J. H. Dellinger, of the Bureau of Standards, told of the work to be done by the International Radio Technical Committee at Lisbon next month.

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F. P. Guthrie read a report from Lloyd Sprague, of the RCA, who was an unofficial observer at the Warsaw Radio Conference. Among other things Mr. Sprague sent to Mr. Guthrie a supplementary report of 41 printed pages in Polish with the comment to Guthrie, "If you find anything in this which I may have failed to see, you might let me know."

John W. Guider told of the work of the Radio Committee of the American Bar Association meeting which is to be held in Milwaukee next week.

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BELIEVE RADIO MANUFACTURERS' CODE IN THE BAG

Although their Code Committee, of which Capt. William Sparks, of Jackson, Mich., is Chairman, has nothing to say except that the negotiations are proceeding satisfactorily, it has been learned on good authority that the radio manufacturers will be granted a separate code. At present they are operating under the Electrical Industry Code.

A public hearing was held recently at which Captain Sparks, Bond Geddes and others connected with the Radio Manufacturers, put up a stiff fight for a code of their own. This was vigorously opposed by representatives of the National Electrical Manufacturers' Association. Since then, however, conferences were held in Washington, one on August 8th, and the other August 21st, in Washington with the report that an agreement has been reached satisfactory to the radio manufacturers. If the decision stands, an announcement is expected to be made next month.

President Leslie F. Muter has called an RMA Board meeting in New York City on September 12th to discuss Code developments. A meeting also will be held by Chairman Powel Crosley, Jr. of the Committee considering the "Five Point" national radio promotion project and conferences held with representatives of the Radio Wholesalers' Association in its further development.

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HENRY BELLOWS RESIGNS FROM COLUMBIA

Considerable surprise was caused by the resignation of Henry A. Bellows as Washington's resident Vice-President of Columbia. No reason for the break was forthcoming either from Mr. Bellows or Columbia. One theory advanced was that it was due to a misunderstanding which arose between Mr. Bellows and Edward Klauber, Vice-President of Columbia, in charge in New York while William S. Paley, President, was on the West Coast.

Harry Butcher, General Manager of WJSV, Columbia station in Washington, who has been connected with the organization for a number of years, will take over Mr. Bellows' duties. In the meantime, the latter has gone over to the National Association of Broadcasters.

"Mr. Bellows has volunteered his services in connection with the October 1st educational-religious stations hearing before the Federal Communications Commission", Philip G. Loucks, Managing Director of the Association said. "He will remain in Washington and has agreed to devote his time chiefly to the preparation of the case on behalf of the broadcasting industry before the Federal Communications Commission. The availability of Mr. Bellows' services to the Association during the present emergency period is welcomed by the industry, and as Chairman of the NAB Legislative Committee he has been active in all legislative matters affecting broadcasting for the last seven or eight years."

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THIRTY-SIX THOUSAND SETS MONTH'S EXPORTS

Radio exports during June, 1934, totaled 36,372 sets valued at \$942,153, and 470,638 tubes valued at \$231,479, according to the monthly report of the Bureau of Foreign and Domestic Commerce.

Also during June there were exported 11,094 loud speakers valued at \$22,257, receiving set components and accessories valued at \$427,924, and transmitting sets, tubes and parts valued at \$73,179.

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COMMUNICATIONS INDUSTRY WATCHES RAYBURN SPEAKER RACE

A suggestion ventured in this letter at the time of Speaker Rainey's death that Representative Sam Rayburn, of Texas, co-author of the Communications Act, and Chairman of the Committee which will have jurisdiction over the Act in the House, would doubtless be a candidate for Speaker, has been quickly borne out by Mr. Rayburn's announcing his candidacy.

An Administration stalwart, Rayburn nevertheless voted "wrong" on at least one measure - the bonus - as did Representative Bankhead, another announced candidate.

Although the White House is not expected to chastise either for this, neither is the President expected to tread on the feelings of other \$100 per centers".

Nevertheless, it is known that Representative Rayburn stands very high with President Roosevelt personally and handled much of the President's recovery legislation in the last Congress including the Stock Market Control and Securities Bill. Also he was the President's right hand man in putting through the Communications Bill.

Vice President Garner and Rayburn both being from Texas, in the opinion of some, might raise the question of "too much Texas" if the latter were from Texas. Incidentally two members of the Communications Commission are from Texas - Gary and Stewart, the latter supposed to be a Rayburn appointee.

Other observers have suggested that Rayburn might be groomed for leader, on a ticket with Byrns as Speaker, while others have intimated the claims of North and West must be given greater recognition.

In case Representative Rayburn were elected Speaker, Representative George Huddleston, of Alabama, Clarence F. Lea, of California, Robert F. Crosser, and Parker Corning, of New York, would be in line to succeed him as Chairman of the House Interstate Commerce Committee.

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TELEPHONE DIVISION PASSES ON ROUTINE MATTERS ONLY

No business of importance was transacted at the meeting of the Telephone Division of the Federal Communications Commission last Wednesday. It was said that only routine matters had been passed upon.

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QUESTIONS RADIOTELEGRAPH LICENSE HOLDERS

Explaining that large numbers of persons held such licenses and that it was necessary to see whether really using all of the channels was a necessity, the Telegraph Division of the Federal Communications Commission passed the following resolution:

"Pursuant to Section 308 (b) of the Communications Act of 1934, IT IS ORDERED that every radiotelegraph common carrier (except those operating exclusively in Alaska) which holds a point-to-point telegraph station license in the fixed public service, or in the fixed public press service, shall file a supplementary statement with each application for renewal of license for the next license period only, showing:

- (a) The name of the organization operating the other end of each circuit designated in the license sought to be renewed and (to the best of applicant's information and belief) its relation to other communications operating or holding companies in the same country and any affiliation which it may have with any communications operating or holding companies or administrations in other countries.
- (b) the number of paid words of public correspondence transmitted during the month of July, 1934, to each point specifically designated in the license sought to be renewed.
- (c) The name of each point of communication specifically designated in the license sought to be renewed to which no paid words of public correspondence have been transmitted during the license period, prior to the date of this order.
- (d) the name of each point of communication specifically designated in the license sought to be renewed, to which paid correspondence was transmitted at some time during the license period but to which no such paid correspondence was transmitted during the month of July, 1934.
- (e) the reason for not handling paid words of public correspondence with each point that may be listed under (c) or (d) above.
- (f) the reason for desiring to continue inactive points of communication in the license.

"IT IS FURTHER ORDERED that the aforementioned common carriers shall at the same time file an additional statement showing the number of paid words of radiotelegraph correspondence received by them in the United States during the month of July, 1934, from each fixed point outside the United States from which messages are received."

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CODE ADMINISTRATOR TO SPEAK AT CINCINNATI

The latest addition to the speaker's list at the annual meeting of the National Association of Broadcasters at Cincinnati is Sol A. Rosenblatt, Division Administrator of the NRA, in charge of the Broadcasters' Code. Mr. Rosenblatt will speak Tuesday afternoon, September 18th.

Another speaker, just announced, is Fred Willis, of the executive office of Columbia in New York, who is to talk Wednesday on the subject of "Widening Horizons - A Conception of the Opportunities, Responsibilities and Problems of Education by Radio."

Following the Monday afternoon session, there will be a stag party in the competent hands of Power Crosley, Jr.

The terms of the Directors - Bellows, Craney, Damm, Ryan, Hedges and Myers - expire at this time.

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WGN TO HAVE HALF MILLION DOLLAR STUDIO

A half-million dollar studio is to be built for Station WGN, owned by The Chicago Tribune, according to a dispatch from that city. The structure, of Bedford stone and Gothic architecture, will rise just north of the present Tribune tower.

It will be three stories as the first section of a 24-story building, and will contain a theater seating 600, three other studios, a music library, sound effect rooms, property rooms, reception and rest rooms for artists and musicians, managers' offices, clients' rooms, etc. The project will be completed by next June.

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RELATION OF SOUND ABSORPTION TO MATERIAL STUDIED

The August number of the Journal of Research contains a report of work on sound absorption where a large area of absorbent material is installed on one surface of a room. Under these conditions it is impossible to obtain a logarithmic decay as is usually assumed in the derivation of reverberation formulas.

As a result of this nonlogarithmic decay the sound absorption is less than would be expected from the absorption coefficient determined when using an area of 72 square feet. Curves are given showing these results. One measurement was

taken on an installation in a large room which showed that the results were similar to those obtained in the reverberation room.

Measurements were also taken on very small areas. In this case the absorption was more than would be expected from the absorption coefficient determined by measuring the absorption of an area of 72 square feet. Curves are given showing that the total absorption is not proportional to the area of the material. Measurements were also made on one installation where the acoustical material was installed in small panels. In this case it was again found that the absorption agreed with that measured on similar areas in the reverberation room.

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AMUSING COMPARISON MADE BETWEEN BBC AND OUR SYSTEM

A humorous article, "Daffodils On The Air" appears in the Saturday Evening Post of this week (August 25th) written by Joseph Hergesheimer, noted novelist, describing the workings of the British Broadcasting Corporation. Mr. Hergesheimer frequently compares the British radio system with ours and although he apparently makes every effort to be neutral, certainly the United States gets none the worst of it.

The writer starts out by telling the difficulties he had renting a radio set in London and immediately after he had turned it on, the following happened:

"An ending strain of music was replaced by the most delicately modulated Oxford voice, the most nectarean human tones, I had ever heard falling from the air. 'The concert', listeners were informed, 'will be interrupted for a needed rest and tuning. There are no soloists to help them. It won't be very long and then we'll go on again.'

"In the United States I had often thought enviously of the programs transmitted by radio over England, the undivided authority exercised by the British Broadcasting Corporation. Listening to the advertising that had made the American air so extravagantly audible, I longed for musical hours not constantly interrupted by the platitudes of corporation heads, economic and financial argument. How pleasant it would be, my thoughts continued, to enjoy actually good music, the resources of eminent scientists, a new form of serious drama, all day, or nearly all day, for days without end. I even spoke, more or less vaguely, about the great superiority of the English system to our own."

Mr. Hergesheimer, however, soon changed his mind about this. One of his conclusions was:

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"The whole problem of public entertainment, the different attitudes behind British and American broadcasting, filled my mind. One conclusion, at least, was plain - the English plan would be impossible for America, the American would never work in England. In England there were not enough rich national firms to make actual a program supported by advertising.

"The English, at heart, disliked and distrusted advertising, the art of putting forward an article or an individual; it was still difficult, after three times there, for me to find a hatter. No more famous hats existed, but the name above the door was so obliterated by age, the shop windows so unobtrusive with a row of gentlemen's hats out of the past, that I invariably went by the shop one way or the other. Yes, advertising was primarily the property, a characteristic energy, of the United States."

An especially amusing paragraph in Mr. Hergesheimer's article was when, for the first time, he located Paris on the dial of his set.

"A nationally minded Frenchman was talking with a vigorous and clear articulation", Mr. Hergesheimer wrote. "He spoke French, I thought, with unnecessary ease. I listened while the Frenchman kept on and on; at the half-hour there was a remote jingling of bells that he paid no attention to. Determined to accompany his speech to its end, I lighted an especially long cigar. With the cigar nearly burned to an ash, I turned him off; he had already spoken with an increasing satisfaction for an hour and thirteen minutes."

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NEW APPLICATIONS GRANTED BY TELEGRAPH DIVISION

August 22 - University of Washington, Seattle, Wash.,
C.P. for new station, 2398, 3492.5 kc., 5 watts; City of Cambridge,
Cambridge, Mass., C.P. 30100, 33100, 37100, 40100, 86000-400000,
401000 kc. and above, 50 watts power; Same - Portable & Mobile
11 applications, same except 9 watts power; Skagit County (State
of Wash.), Mt. Vernon, Wash., C.P. for new station, 2414 kc.,
50 watts.

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