

HEINL RADIO BUSINESS LETTER

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ZENITH PLANS BROAD RESEARCH IN TELEVISION FIELD

An extensive research program which will be aimed at putting television on a practical scale will be conducted by the Zenith Radio Corporation, of Chicago, if the Federal Communications Commission grants it a permit for a visual broadcasting station.

Details of the plan were disclosed this week by Examiner George H. Hill in a report recommending that Zenith be given the permit to conduct experiments on 42,000-56,000 and 60,000-86,000 kc. with 1 kw. power, unlimited time.

Results expected from the research, according to the Examiner, "are the acquiring of sufficient information necessary for the production of a transmitter, a receiver, and associated equipment capable of rendering reliable, high quality television service."

The report describes Commdr. E. F. McDonald, Jr., President of the Zenith Corporation, as "one of the pioneers in short-wave radio, both in transmission and reception", and calls attention to his operation of a radio station, WJAZ, in the earlier twenties. The Examiner cites the sound financial condition of Zenith and expresses confidence that it will be able to construct the station and conduct the experiments although no estimate of the cost was given by the applicant.

Commander McDonald, aided by Irving Herriott, counsel, appeared before the Examiner last Fall in behalf of the application.

"The applicant has been actively engaged since January, 1937, in the development of important parts of the television transmitter and receiver such as sweep circuits, synchronizing signal generator and television amplifiers", Examiner Hill said. "The proposed transmitter is completely designed for and will be capable of modern high definition television, using all electronic methods. The pictures will be composed of 441 lines, sixty frame interlaced.

"The television development program of the applicant calls for research and experimentation in television transmitter, transmitter antenna, the transmission medium, television receivers, and receiver antenna. Television service has certain requirements peculiar to it which are not met in ordinary radio transmission in that the television signal must carry not only the intelligence, but also the synchronizing signals.

These signals have requirements in their relation to each other, and for this and other reasons, the five divisions referred to are not always entirely distinct from each other so that research must generally proceed along all lines which involve several of these subjects.

"The television transmitter may be considered a composition of several well-defined separate units upon each of which research, experiments and tests will be conducted by the applicant. Several television pickup systems have been developed which are entirely electronic in operation and have reached a fair state of development. Experiments will be conducted with each of these units to determine the comparative sensitivity under all conditions of studio and outdoor use, their respective resolution powers and general adaptability to television pickup work. It is not contemplated that research looking toward the development of a new pickup tube will be undertaken; however, it appears that there are promising possibilities in the field of electronic pickup field equipment and this or any other development of promise would be investigated if necessary or advisable.

"A number of requirements have to be met to successfully pickup live talent in the studio and elsewhere. Tests will be conducted to determine what equipment is best for the maintenance of good optical focus commensurate with ease of mobility of equipment, its performance electrically under conditions of rapid movement, and the electrical output under practical working conditions. . .

"It is the function of the television receiver to translate the incoming signals into useful intelligence, and the receiver must faithfully reproduce in the desired form the received energy. The television receiver must also maintain synchronism exactly at all times with the transmitter. The applicant will conduct a careful study of received transmissions looking toward the development of sweep circuits and synchronizing systems which will be least affected by the various factors bearing on radio transmission, such as possible multipath signals, fading and atmospheric and electrical disturbances. The television receivers will be required to work in locations where there is noise present which could well interfere with synchronism, and it is intended to make careful observations of transmission signals under all the different reception conditions possible.

"It appears that in ultra short-wave reception the type of receiver antenna and its location are very important. It is generally necessary that some type of transmission line be used and that the antenna used with it be carefully located. This is of special importance in television reception where every effort must be made to overcome electrical interference, which is more prevalent in those frequencies assigned to television than any others. The development program for television

receiving antenna calls for the transmission line coupled type. Experimentations and tests will be conducted on directive systems as well as antennas of the half-wave type.

"The applicant believes that one of the principal phases of an experimental television program is the investigation of radio transmission on the ultra high frequencies. The transmitting and receiving antennas represent the terminal connections to the transmitting medium and it appears that much work remains to be done on both. The applicant has manufactured and sold for many years radio receivers which operate on the high and ultra high frequencies, and its experience during this time indicates that present conditions are not satisfactory. The development program of the applicant will lay stress on a complete investigation of antenna systems and to this end all possible types of antenna systems will be used for the purpose of conducting actual field strength coverage surveys."

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N.Y.C. STARTS RADIO EDUCATION TESTS

New York City public schools this week were tuned in on the first of a series of 110 daily radio broadcasts, conducted by the City Board of Education to supplement classroom teaching. Dramatized versions of various subjects were transmitted to 160 elementary schools and 44 high schools.

The teachers, assisted by pupils, are preparing the scripts, which are broadcast over Station WNYC, the municipal radio outlet.

The broadcasts are experimental, school officials said, but if found to be satisfactory, they will be made a regular part of the school curriculum.

At the same time WOR, Newark, announced it is preparing a series of 15-minute educational recordings for distribution by September 15th.

Three such records are completed, prepared in the form of a dialogue between a teacher and an appealing character named "Uncle Henry". All have been tested under actual classroom conditions in various New Jersey schools. Complete fifteen-record sets will cover such subjects as Elementary Science, Art Appreciation, Nature Study, Etiquette and Astronomy.

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RMA CARRIES RADIO TAX FIGHT TO SENATE

The Radio Manufacturers' Association and radio industry campaign to repeal or modify the Federal 5 percent radio excise tax is now being waged vigorously in the Senate at Washington, according to Bond Geddes, RMA Executive Vice-President, following omission of any action on radio in the House general tax revision bill reported March 2nd. Revenue needs of the Government, with the radio tax raising over \$6,000,000 annually, was the principal cause for omission by the House Ways and Means Committee of any action on the radio excise tax, Mr. Geddes said. The House Committee report stated that the undesirable "nuisance" taxes "should be removed when possible but unfortunately the revenue requirements of the Government are such that very little revenue can be spared at this time."

Despite the House action, the RMA is leading anew the effort before the Senate Committee, generally regarded as more liberal than the House, for relief on the radio excise tax. RMA members and also distributors, dealers, and broadcasters will now concentrate appeals on the Senate. The RMA will appear before the Senate Finance Committee at its public hearings, scheduled about March 15, and renew the industry's plea for repeal or substantial reduction of the radio excise tax. President Muter of the RMA and A. H. Gardner, of Buffalo, Chairman of the Association's Legislative Committee, are again urging RMA members to write their Senators and for similar action by their distributors and dealers.

Although the House bill failed to include any action on the radio tax, it provided for repeal of excise taxes on such outright luxuries as furs, sporting goods, cameras, and chewing gum. It also added a repeal of the excise tax on matches regarded as a common necessity. Total excise taxes proposed for repeal aggregated almost \$30,000,000. In its presentations to the Senate the RMA will contend that radio, through its universal service and use, is entitled to first consideration and, like the press, should be free of taxation.

This position was recognized by the House Ways and Means Committee, and although the radio tax was regarded as too large to be included in this year's repeal program, the RMA campaign in the House developed strong sentiment at least for repeal or termination of the radio tax in 1939.

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FCC URGES RADIO AID IN CALIFORNIA FLOOD

The Federal Communications Commission this week called the attention of all licensees of radio facilities in the Southern California flood area of the provisions of Rule 23 of the Commission's Rules and Regulations permitting such licensees, during the period of the emergency, where normal communication facilities are disrupted, to engage in emergency communications beyond and above those authorized by the license.

"This means that a broadcast station may handle messages concerning safety of life and property, amateurs may engage in the transmission of such messages, other stations may communicate with points other than those specified in the license, etc," the statement said.

"During the flood of the Ohio and Mississippi Rivers in February of last year, radio was a very valuable asset in preventing the loss of life and property. It is the desire of the Commission to cooperate in every way possible in making maximum use of radio facilities for assistance in the stricken area. The Commission will give immediate attention to all requests for emergency operation under the provisions of Rule 23."

Meanwhile radio amateurs of the country established communication with Los Angeles as other media failed.

Working through the American Radio Relay League, Inc., of Hartford, Conn., a national system for the transmission of information was organized within a few hours, and an amateur in Denver served as a clearing unit.

The communications' chief for this national network was F. E. Handy at the Hartford office of the organization. Through his efforts thousands of amateurs throughout the United States tried to establish contact with the 2,000 in the Los Angeles area.

In Los Angeles, meanwhile, three coordinators of the amateurs were at work. Their job was to sort out the wavelengths of the 2,000 amateurs and assign a special one to each station, so that the chances of being picked up outside the city would be increased.

The mobilization of the amateurs on short notice is part of a national plan which has been worked out by the League. It is a counterpart of the plans laid out for a smaller organization composed of the Army Amateur Radio League, which is made up of those who have offered their services and equipment for army service in emergencies.

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PAYNE LAUDS TAX BILL; HEARING NOT YET SCHEDULED

Commissioner George Henry Payne, who drafted the original bill to impose a wattage tax on broadcasting stations, this week came to its defense while Representative Thompson (D.), of Illinois, delayed scheduling a hearing on the Boylan measure until after the House had passed the general tax bill.

Commissioner Payne's defense of the tax proposal was in the form of a letter to the editor of the New York Times. It read in part as follows:

"I believe the bill has the five virtues that should characterize a good revenue measure. The proposed tax is simple, it is easy to collect, it is constitutional, it is fair and the basis for the tax is definite.

"A definite amount of power, in watts, is authorized to every broadcast license issued, and in the great majority of cases the wattage authorized is the measure of the station's value. It is this wattage that is made the basis.

"Previous to the drafting of this bill there had been much discussion of the necessity of taxing radio stations, and one bill drafted in the Federal Communications Commission taxed forty-one articles used by or relating to radio stations. The proposed measure was complicated, trifling in many of its provisions and unfairly distributed, for it applied to non-profit as well as to profit stations. The present measure specifically excludes educational and other non-profit stations.

"I might add that no bonafide special tax measure, such as this bill, has ever been declared unconstitutional by the Supreme Court, for these measures levy taxes on occupations which have been held legitimate bases for taxation from time immemorial.

"Furthermore, most occupational taxes are levied on businesses that receive no direct benefits from the government; that is, no benefits which all of us do not receive. In the case of broadcast stations the frequencies, without which they could not possibly exist, are loaned to them by the government. Broadcasters enjoy a valuable franchise. Broadcast frequencies, as you have stated, are very limited in number, are in great demand and are of immense value."

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THREE NEW STATIONS APPROVED BY EXAMINERS

Examiners at the Federal Communications Commission this week reported favorably on applications for broadcasting stations in New York, Massachusetts and Texas and favored power increases for two other applicants.

Reporting on rival applications for 1240 kc., Examiner John P. Bramhall recommended that it be allowed to Thomas J. Watson, of Endicott, N. Y., and the Hampden-Hampshire Corp., Holyoke, Mass. The application of the Citizens Broadcasting Corp., Schenectady, N. Y., was adversely reported.

The third station recommended was requested by the Sam Houston Broadcasting Association, Huntsville, Texas. It would operate on 1500 kc. with 100 watts power, daytime.

Favorable action also was recommended on applications of WGBI, Scranton, Pa., to increase its power to 1 KW, and of KMLB, Monroe, La., to transfer from 1200 to 620 kc., and raise its power to 500 watts.

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JAPAN READY FOR TELEVISION TESTS

The Japan Broadcasting Corporation is preparing to start television test broadcasts in preparation for temporary television broadcasts in Tokyo in July this year, according to a report to the U. S. Commerce Department.

The corporation has been studying television broadcasting, inviting Prof. Kenjiro Takayanagi of the Hamamatsu Higher Technical School, internationally famous authority on television, as chief of the third department of the technical laboratory of the corporation at Kamatacho, Setagaya-ku, Tokyo, and constructing four television motor cars, a temporary broadcasting station, and a laboratory.

As the study was almost completed recently, the corporation has decided to start temporary television broadcasts next July from Kamatacho, with 500 watt power.

"The receiving set, constructed by the technical laboratory of the corporation, will be obtainable at about 1,000 yen", the report stated. "Further study will be made for the reduction of the cost of receiving sets."

Although the area of the received image is 20 to 22 centimeters square, it is said it can easily be enlarged to one-meter square.

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PIONEER IN RADIO FACSIMILE DIES IN N.Y.C.

Dr. Otho Fulton, pioneer in the field of facsimile transmission of pictures and printed matter over radio or wire lines, a leading experimenter in this field for more than twenty-five years, died in New York City this week of a heart attack. He was 70 years old.

A British subject born at Hull, Dr. Fulton came to America about eight years ago to demonstrate his ideas after a series of successful tests made in England and on the Continent, according to the New York Times. He is credited with having been the first to send a picture on a radio channel over great distances. This took place about ten years ago over the Marconi radio beam between London and Sydney, Australia, covering nearly 11,000 miles.

Several years ago Dr. Fulton organized Fultograph, Inc., to carry on the development of his patents here, but principally to introduce his facsimile ideas. Dr. Fulton was the president.

With Dr. E. R. Wagner, a chemist, and Dr. Harold Brown, paper expert, Dr. Fulton in the last six years is said to have developed a special paper for his facsimile apparatus that requires no development after it comes off the receiving machine, but provides a permanent and non-fading record of the matter transmitted.

One of the inventor's basic ideas for the facsimile equipment was an "electro-magnetic clutch" utilized for positive synchronization of the receiving printer with the transmitting stations, whether the connecting link is by radio or wires. It is said that Dr. Fulton was very fond of this piece of apparatus, often referring to it as the heart of the equipment. Through his years of experimental work he clung jealously to this synchronizer, while other experimenters adopted other methods.

Recently, the Times said, he had interested about thirty broadcasting stations of the country in his facsimile machine, and they were regarded as ready to make use of the equipment to project pictures and printed matter into homes when the necessary authority is granted by the Federal Communications Commission. Negotiations also were under way, it was said, between interests here and in Canada to form a link between the countries for the transmission of news matter.

It also was announced that arrangements are being made with Press-Wireless to link New York and South Africa with a facsimile channel, beginning June 1st.

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 ::: TRADE NOTES :::
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Arturo Toscanini has made a new three-year agreement with the National Broadcasting Company. Under this arrangement Mr. Toscanini is expected to direct the NBC Symphony Orchestra next season for a longer period than he has this season.

Reports from Addis Ababa announce the opening of a new 1-kw. radio station in the Ethiopian capital on February 1st. A powerful radio station is to be built at Addis Ababa for inauguration next year, according to Reuter, Rome.

Edward Padula, a recent Yale graduate, has joined the television staff of the National Broadcasting Company, New York City, as a production director. Mr. Padula's job will be to generate ideas for future programs and conduct rehearsals in NBC's Radio City television studios.

Designed to eliminate troublesome static interference in auto radio reception, a simple spring device that fits inside the hub cap has been patented by two Flint (Mich.) inventors. The invention, according to Levi R. Grandy and Harry C. Doane, the inventors, grounds the automobile wheel to the frame and prevents an accumulation of static electricity in the wheel.

Stations KSEI, Pocatello, Idaho, and KTFI, Twin Falls, Idaho, will become affiliated with NBC's North Mountain Group on March 15th. The addition of the two stations increases the total number of NBC affiliates to 146.

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BRITISH SET LIMITS ON RADIO INTERFERENCE

A new British Standard Specification has recently been issued concerning the permissible limits of radio interference in the medium and long-wave bands, according to World-Radio.

It is well known that certain types of electrical appliance, such as vacuum cleaners, produce high-frequency currents which may find their way into receiving sets through the supply mains. Certain other types of apparatus and machinery radiate a high-frequency field which may cause interference

if the receiving aerial or down-lead lies within it. The specification, therefore, prescribes limits for the high-frequency voltage produced at the terminals of machines and appliances suitable for connection to public supply mains not exceeding 500 volts; in cases where an interfering field is radiated, the maximum strength of this field is also specified. Limits are also given for the duration and frequency of occurrence of the interference. A special mark is to be registered under the Trade Marks Act, which will be affixed to appliances made by manufacturers whose products comply with the Specification, and who have obtained the necessary license from the British Standards Institution.

"At present, there is no obligation on manufacturers to conform to the requirements of the Specification, but they are strongly recommended to do so, in the interests of broadcast listeners", the BBC organ states. "Furthermore, it is hoped that the public will favor appliances which bear the interference-free mark, and so encourage manufacturers to take the precautions necessary to qualify for it. In some cases a slight re-design of an appliance will suffice to reduce the interference below the specified limits; in others, it will be necessary for the makers to incorporate special suppressors in the appliances.

"The issue of this Specification represents an important step forward in technical discussions which have been proceeding for some years between the representatives of all the interests involved, including the Post Office and the BBC."

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MARKED RISE IN RADIOBEACONS REPORTED

During the past calendar year there has been a substantial increase in the number of radiobeacons available for marine navigation in all parts of the world, according to the U. S. Lighthouse Service. These navigational signals, which were largely pioneered by the United States Lighthouse Service, have found such universal acceptance that they are now provided by all the important maritime nations of the world.

The total number of marine radiobeacons in the world on January 1, 1937, was approximately 380, of which the United States had approximately 33 percent. Similar figures for January 1, 1938, show the total for the world to be approximately 421, with the United States having 30 percent.

The United States Lighthouse Service is now expending considerable effort in improving the effectiveness of its radiobeacons by the addition of distance-finding signals, consisting of synchronization of the radiobeacon signals and the sound-in-air fog signals, such signals now being available at 84 stations, and the equipment of stations is being rapidly modernized for improved service.

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