THE EVENING WORLD'S RADIO PHONE SERVICE COLUMN.

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CONCERNING TIME SIGNALS.

The question is often asked if the time signals from Arlington are absolutely correct, inasmuch as they pass through reducing and retransmitting phases before reaching the listeners who employ short-wave receivers. Theoretically there may be a lag, but for all practical purposes the retransmission is without loss of time. In this connection it is well to remember the speed at which electro-magnetic vibrations travel, which is somewhere in the neighborhood of 187,000 miles per second, representing a total distance of more than seven times the circumference of the earth. The degree of this speed does not permit a noticeable lag, no matter how many transformations it passes through, even to the most sensitive of the human faculties.

The method employed by the radio broadcasting stations appointed by the United States Government to co-operate with the Arlington wireless station in the dissemination of public news, of which the time signals are a part, is very simple and highly interesting. The method by which the weather reports are made is simply by translating code messages received and reading them in the usual way. The scheme for giving out the time signals is quite different and as ingenious as they are useful.

Official Eastern Standard time, which is reckoned from the sun, is broadcast twice daily by N A A, Arlington, Va., the Government station just across the river from Washington, on a high power spark set. From 11.55 to 12 noon on a wave length of 2,850 metres in a series of long dashes the official time is sent broadcast, to be picked up wherever accurate time is essential. From 9.55 to 10 P. M. the operation is repeated, and the characteristic spark of this powerful Government station is again heard by hundreds of thousands listening in on short wave receivers all over the country after passing through local stations and being made available at 360 metres. The present standard of time, daylight saving, however, brings the time just one hour later. This in no way destroys the value of this service.

How the spark signals on 2,850 metres are retransmitted on the continuous wave of 360 metres is what seems to puzzle most people and cause them to think the signals slightly erroneous. Quite to the contrary, as you will see, they are very accurate. In the stations authorized to broadcast this official matter, aside from the CW transmitting set over which the concerts are sent, is a medium wave receiving set with a range of from 1,000 to 5,000 metres. On a separate long single wire antenna the time dashes are received and passed through the usual detector unit and two stages of amplification and a loud speaker. The loud speaker is placed in front of a phonotrone which receives the time dashes from the loud speaker and telephonicly sends them on to the continuous wave transmitter to which it is connected and hence into the atmosphere again. This time reduced some 2,490 metres, but retaining the heavy original tone of their emanation, they speed on, using the 360-metre wave to the waiting radio audience.

The transformation is accomplished so quickly and thoroughly that if one had two receiving units at home, one set for receiving Arlington direct and the other for the reception of the local 360 metre station, the signals would seem to synchronize perfectly.

This same procedure was followed very successfully all over the world in letting everybody hear the nuptial music played at Westminster Abbey at the wedding of Princess Mary a few months ago.

TOO MUCH AERIAL.

A great many radio enthusiasts have found that the seemingly "fool proof" part of the apparatus has been the cause of the greatest amount of trouble. This seems to be more prevalent with our suburban friends than with those who live in the city. The reason for this, however, is the additional space that the folks from out of town have at their disposal rather than superior knowledge on the part of the cities' inhabitants.

Too much aerial is just as bad as too little in a great many cases, particularly where the short wave receiving outfit is used. In 90 per cent. of the aerial troubles the length or rather too great a length is directly responsible. The fact that an aerial has a natural period of vibration never occurs to most fans. An irresistible desire to have an aerial that is several times too long is a common sight in the suburbs. Consequently there is a tendency to condemn the instrument when no reception can be had, because the natural wave length makes the tuning device incapable of functioning. This can be overcome by inserting variable condensers in series with the antenna. This, however, is only an added expense and no better results are obtainable than with an aerial of the proper size.

Here is a striking example of what too much aerial means. Not long ago a friend living in Westchester sent an S O S for me to come up and look over a receiving set that he had installed at great expense but which refused with a tenacity worthy of a greater cause to work. After looking over all the instruments, which were hooked up to perfection, and finding nothing wrong and being able to get some signal that I knew to be in the neighborhood of 100 metres, we went out and looked over his aerial, which was a beautiful arrangement, about 400 ft. long, to whic was added at least 100 ft. of lead in and ground wire, gliving him a natural period of something like 650 metres. This naturally excluded everything below that length, because he was not equipped with the necessary variable condensers in his aerial. After the necessary advice had been given he purchased the additional variables and is enjoying the evening concerts, but not one bit better than he would if he was operating with an aerial about one-quarter its length.

A great many fans get so much aerial that when they get down to tuning they have no latitude at all and the slightest adjustment imaginable in the tuning circle cuts them out entirely. There is no need for a great length of aerial unless you are several thousand miles removed from the station you are trying to receive. Use the regular 100 foot aerial, with as short and direct a lead-in and ground as it is possible to get along with, and give the tuning sections of the instrument a chance to function properly with as much latitude as it is possible to give them.

RSERVATIONS BY RADIO.

The Globe Theatre management announces that it has installed a radio receiving set in its box office to take care of all radio requests for reservations. This is to be used principally for the receiving of reservations from passengers on board incoming ships. London has been using the same system for the last year in connection with the London-Paris air route.

W G I (Medford Hillside) Mass. 360 Metres.

2.55 P. M.—Music.
3 P. M.—Current events.
7.30—Baseball scores.
7.45 P. M.—Boston police reports.
7.50 P. M.—Weekly business reports.
8 P. M.—"The Other Side of the Monroe Doctrine," Halford L. Hoskins, Professor of History, Tufts College.
8.20 P. M.—"Old Age Pensions," by Wendell Phillips Thore.
7.45 P. M.—Alice Armstrong, lyric soprano; Mary Thorpe, accompanist. Selections: "Hayfields and Butterflies" (Del Riego); "Care Selve," (Handel); "There Are Fairies at the Bottom of Our Garden" (Lehmann); "Song of the Open" (La Farge).
9 P. M.—Henri Weinberger, trumpeter.

W J Z (Newark) 360 Metres

Features for the day:
Agricultural reports at 12 M. and 6 P. M.
Arlington official time (daylight saving), 12.55 to 1 P. M. and from 10.55 to 11 P. M.
Baseball scores at 3 P. M., 4 P. M., 5 P. M., 6 P. M., 7 P. M. and 8 P. M.
Music from 11 A. M. to 6 P. M. for fifteen minutes after the hour.
Shipping news at 2.05 P. M.
Weather reports at 11 A. M., 1 P. M., 6 P. M. and 11.01 P. M.
6 P. M.—"Business and Industrial Conditions in the United States" as observed by the National Industrial Conference Board.
7 P. M.—Stories from St. Nicholas Magazine.
7.30 P. M.—"Eat and Be Healthy," by Mrs. Jenoise B. Short, editor of the Housewives' Pictorial Review.
7.45 P. M.—"Fire Prevention," by T. Alfred Fleming, National Board of Fire Underwriters.
8 P. M.—Recital by Mabel Emple, American soprano; Miss Florence Best accompanist. Programme: "Rose in the Bud" (Dorothy Foster), "Just You" (H. Burleigh), "Southern Lullaby" (R. H. Terry), aria from "Cavalleria" (Mascagni), "Un doux Ren" (Delbruck), "La Colomba" (Kurt Schindler), "Le Soir" (Christian Kriens), "There Is No Death" (Goeffry O'Hara), "Yphrzeit" (Rhea Silberta), "Golden Crown" (Spiritual) (Gantvoort-Graves), "The Thrill of You" (Vanderpol), "Come Love Me" (Vanderpol), "Smill. Thru" (Penn), "That Night" (Penn).
Concert by Clark Morrell, tenor soloist of Dr. Cadman's Central Congregational Church, Brooklyn; Edward Schloss, accompanist. Programme: "Come Love Me" (Vanderpol), "Morning" (Speaks), "In Native Worth," Creation (Haydn), "The Lilac Tree" (Gartlan), "There Is No Death" (O'Hara), "I'll Sing Thee Songs of Araby" (Clay), "Vesti la Giubba," arios "Pagliaccio" (Leoncavello), "I Wonder if You Still Care" (Snyder).
9.15 P. M.—Recital by Rosa Low, lyric soprano, who recently gave a recital at the White House.

K D K A—Pittsburgh 340 Metres.

3.30 P. M. and at fifteen-minute intervals thereafter—Baseball scores.
7 P. M.—Baseball scores. News. Weekly review of business conditions, by the National Industrial Conference Board.
7.45 P. M.—Government market reports and a report of the New York Stock Exchange.
8 P. M.—Baseball scores. "Large Steamships That Anchor in American Waters," by Grayce Druitt Latus of the Public Opinion News Bureau.
8.30 P. M.—"Floating Island," a bedtime story for the children.
9 P. M.—Music Programme by the Ernest Gamble Concert Party; Miss Clara Stadelman, soprano; Miss Verna Page, violinist; Ernest Gamble, bass.
10 P. M.—Baseball scores.
10.55 P. M.—Arlington time signals.

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