

CHATS WITH THE WEATHER MAN

RELEASE Friday, October 16, 1931.

FOR BROADCAST PURPOSES ONLY

ANNOUNCEMENT: And now for a chat with the weather man. Again our old Ob. Server brings us a few observations from the weather-wise of the United States Weather Bureau -----Well, Mr. Ob.Server what is it this time?

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Well, I guess all you radio listeners realize that weather sometimes has a lot to do with radio. A thunderstorm sometimes breaks in on a delightful program, in a most disconcerting way.

But, what is surprising to me, is the number of folks who seem to have picked up the notion that broadcasting has something to do with the weather.--Yes, sir! They actually have tried to settle the blame for the recent drought on the effect of radio stations on the air. And, as if that wasn't going far enough, those who have been soaked with too much rain have also blamed radio. They have written the United States Weather Bureau about it.

I say it is a surprise to me, but it doesn't seem to surprise Dr. W.J. Humphreys, chief of the Bureau's Division of Meteorological Physics. He says similar complaints were made about telegraph lines and their effect on the weather. Various unusual weather conditions were also blamed on the railroads, back in the days when railroads seemed something new and marvelous. In fact, Dr. Humphreys says, it seems to be human nature to explain whatever is not understood by attributing it to something that is still more mysterious. What is more natural then, for people who know little of either weather science or radio, to try to explain that unusual drought as in some way connected with the seeming marvels of radio.

Of course most of them are very vague as to just how broadcasting could effect the weather. They just make a wild guess that it does. Others however, try to bolster up the notion with some show of scientific knowledge; but they get terribly mixed-up in the process.

For instance, some of these muddled guessers have suggested that radio broadcasting burns up the water vapor in the air and so decreases the amount of rainfall. In support of that notion, they point to the well-known laboratory experiments in which water is broken up into its constituent parts, hydrogen and oxygen, by passing an electric current through it.

That sounds very pretty, Dr. Humphreys says. The trouble is that in radio broadcasting nothing remotely similar to that happens. In broadcasting, it is radio waves and not electric currents which are sent through the air. And even if it were electric current, the combined power of the stations in all parts of the country would not take enough water out of the air to water a small potato patch.

But Dr. Humphreys is not content to ridicule these outlandish notions about radio and weather. He has made a special study of popular weather lore of all countries and all times. Good or bad, he puts weather legends and proverbs to the acid test of scientific knowledge and reasoning. On that basis, he declares that we know from theory, and observation, and experiment, that no element of the weather is affected by radio. Here is his line of reasoning:

He analyzes Nature's own way of making rain. That, he says, is the best way to see just how and to what extent radio could affect rainfall.

In the first place, Dr. Humphreys points out, the first action necessary to precipitation, whether as rainfall, or snowfall, hail, or sleet, is evaporation. That is, the water first has to be gotten into the air in the gaseous form, before it can come out again in the form of rain or other precipitation.

Well, the rate of evaporation, as you know, depends chiefly on four things. First, on the temperature of the evaporating water. Second, on the area of the evaporating surface. Third, on the velocity of the wind, and Fourth, on the dryness of the air.

Of course, no one in the neighborhood of a powerful "sending station" ever claims that any lake, or reservoir, or other body of water nearby spreads over a lot more ground when the station is in operation than it does when the station is silent. So I guess we will all agree that in as far as the rate of evaporation depends on the area of the evaporating surface, radio certainly has nothing to do with it; so we can just pass up that second factor.

And the first also, for that matter. You know the temperature of the water does not vary appreciably, if at all, with the wireless activity. Neither, so far as any one can observe, does the wind round about a wireless station change with the amount of broadcasting or receiving. And you will realize that radio does not alter the dryness of the air, either.

All right, then. If radio does not affect any of the things that themselves make for evaporation, it doesn't affect evaporation itself. So it has nothing to do with getting the moisture into the air.

I seem to hear some of the very folks who have had this notion about the radio affecting the weather- say! "Well who said it did?"

That brings us to the next step in Nature's rain-making, as outlined by Dr. Humphreys; the condensing of the water vapor out of the air in the form of drops. That is where some folks claim radio comes in.

To make rain drops, two things are needed. First, you must have something for the drops to form on. Dr. Humphreys tells me that each cloud droplet has as its nucleus and excessively small particle of some substance that readily takes up water vapor.

When the white-capped waves on the vasty ocean break or are thrown into spray, little particles of sea salt are projected into the air. Air currents may carry them thousands of feet into the air. Salt taking up water readily, those minute particles of salt in the air make first rate nuclei on which cloud droplets can form and grow by adding water until they fall as raindrops.

Some land dusts, such as fine pollen grains from plants and flowers, or bits of decayed vegetation, or soot, serve the same purpose. And you might think that since there is more soot about cities, and soot takes up water so readily that more rain would be formed about cities. However, Dr. Humphreys says there is always, everywhere, plenty of the needed dust particles for rain formation. In fact, there is a superabundance. Adding more to the air has no effect. It is like the proverbial carrying of coals to Newcastle.

By direct experiment, Dr. Humphreys says, it has been demonstrated that the nuclei needed for rain drop formation are not produced by wireless waves.

But to get raindrops you need something besides particles about which the water can collect. To get water vapor condensed takes adequately cooling of the vapor and with it (unavoidably) the other elements in the atmosphere. Yet it has been found that the temperature of the air does not go down about an active wireless station any faster, nor to a lower degree, than it does at other similarly located places.

Evidently then, radio does not take water vapor out of the air and make it drier, thus increasing evaporation and subsequent rainfall. Neither does it prevent or decrease rainfall since it has no effect on any of the factors of either evaporation or condensation.

On top of that, Dr. Humphreys says, drought may prevail in one region at the same time that another, with equal wireless facilities, is being flooded. Furthermore, such droughts, and floods as we now have prevailed time and again throughout the world long before radio was ever dreamed of.

No. Some radio programs may make you glad, and others may make you weep, but the sending out of radio waves from a broadcasting station has nothing to do with Nature's weeping or the withholding of her tears.

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ANNOUNCEMENT: Our thanks to Dr. W.J. Humphreys, of the United States Weather Bureau, for knocking another nut notion on the head. Radio has enough troubles of its own, without anybody trying to blame it for the weather. This time two weeks from today we will have another of these chats with the weather man.

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# **National Oceanic and Atmospheric Administration**

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July 23, 2010