

CHATS WITH THE WEATHER MAN

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ANNOUNCEMENT: Well, the Weather Man is here again, ready for another chat about that biggest of puzzles---the weather. Today, he unfolds a **story** about how the forecasters go about predicting our rains, and snows, and storms.

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I suppose you glanced at your paper this morning to see what the weather man had to say about today's weather.

I wonder if you know just where that forecast came from.

I also wonder if you know how the weather men went about making that forecast. How does the forecaster tell when we will have rain, or snow, or sunshine? How can he predict weather conditions a day, or even several days, in advance?

Well---to answer that first question---that forecast you read in your paper this morning came from the forecast center for this district. We have five such forecast centers---one at Washington, D. C., and at Chicago, and New Orleans, and Denver, and San Francisco. Those five offices send their forecasts to nearly 2,000 main distributing points. From those distributing points, the forecasts are still further distributed by newspapers, telegraph, and telephone, and radio, and mail.

How do the men at those five forecast centers---or, in other words, the district forecasters---make up their daily forecasts?

That's what I asked Mr. E. B. Calvert of the U. S. Weather Bureau.

Calvert said to me, "Do you see this big map"?

It was a map of the northern hemisphere. I saw the world just as I would see it if I looked down on it from above the North Pole. I could see North America, and Europe, and Asia, and the various islands and oceans.

"That is a northern hemisphere weather chart." Calvert said. "The present-day forecaster bases his weather forecasts upon charts similar to that one, but not all of the forecast centers have charts covering the northern hemisphere, but all of them have charts containing data for the entire United States, Canada and contiguous areas."

I looked at the big map a little more closely. I began to see on the map hundreds of figures, and lines, and little arrows. The United States, and Canada and Mexico, and Europe and Asia, and the various oceans were literally peppered with them.

I asked Calvert what all of the figures and so on meant.

He said, "Every one of those figures and arrows you see on that map represents a report from a trained weather observer. The arrows tell which way the wind is blowing. The figures give the temperature and barometer readings. All in all, that map gives you a fairly detailed picture of weather conditions throughout the northern half of the world."

As I looked at those marks on the map, two questions popped into my head. First, I wondered how in the world a person could get a weather forecast out of all that jumble of lines, and figures, and arrows. Second, I wondered where all of those records came from.

But I wasn't in doubt long. From what Calvert said, it seems that when a trained forecaster looks at that maze of lines, and figures, and so on, he immediately sees what is happening and what is going to happen, taking form. All of those lines, and figures, and arrows tell him a story of storms and weather disturbances of this and that kind throughout the world. As he studies those maps from day to day, he begins to get a pretty definite notion of just where those storms are headed, and how fast, and when they will reach this place and that place, and when they will pass over, and what the weather will be in the state or locality for which the predictions are made.

It occurred to me that, after all, a weather forecaster is simply a man who collects information about weather conditions from hundreds of scouts far and near and passes the information on to the public.

But Calvert smiled when I put that thought into words. "I think perhaps you've made the forecaster's job much simpler than it actually is", he said. "If you gave the average person one of those big weather charts of the northern hemisphere, and told him to predict tomorrow's weather, the average person would be almost completely lost. He might guess after a fashion that a rain or freeze was headed our way. But, unless he understood the physical processes involved, the dynamics of the atmosphere, what is causing rains and snows, why the winds are moving in certain directions, and a host of other facts, his forecast would be almost worthless. However, you are right in thinking that the forecaster must have the daily weather reports you see recorded on that map."

I noticed Calvert said daily reports. I asked him if he meant we got reports from all those places I saw marked---all around through Europe, and Asia, and the oceans---every day.

He replied, "Yes, every day---and from most of those places twice a day."

And he went on to explain just how the Weather Bureau goes about getting the reports from all those hundreds of places."

To make the system clear to me, he started at the beginning of our weather reporting work, and quickly traced for me some of the main developments up to the present time.

Back in 1868 a man named Abbe, working through the Cincinnati Chamber of Commerce, got the Western Union Telegraph company to provide daily weather reports from places along its lines. The company had many offices in the northern

and southern states and as far west as the Rocky Mountains. Likewise, the Army signal corps was pushing its military lines far into the southwest and northwest. His work had a large influence toward the establishing by Congress of a national meteorological service in 1870. At first, very few reports came from west of the Mississippi. The early weather forecasters had to depend on reports from a region no bigger than the range of the telegraph lines. However, year by year, the telegraph crept farther and farther into the new regions of the West and filled in those big gaps in our national weather chart.

But the weather chart of one country---even of a country as big as the United States---isn't enough for the forecaster. He also must know weather conditions to the north of us, and in Mexico, and the Gulf of Mexico, and in the Pacific.

Of course, the Weather Bureau can't have men stationed in all of those places to take weather observations.

As Calvert explained, we have observers at some of our island possessions, but, for the most part, we get reports from beyond our national boundaries through cooperative exchange arrangements of one kind or another.

As you know, about 60 per cent of the northern hemisphere is covered with water. We get reports about weather conditions on the high seas from about 500 ships. Until just recently, the government paid the reporting ships a small fee, but ship masters are appreciative of the service given them by the Weather Bureau and the fee has been cut out for reasons of economy, and they have kept on sending us weather reports just the same as before. The ship captains look upon their reporting as a matter of fair exchange. They send us a report on conditions in their particular neighborhood. Our meteorologists take that report, put it alongside hundreds of others, and then send back to that ship, by means of radio broadcasts reports which show the general weather conditions over the oceans, and accompany it with forecasts for various ocean zones, and storm warnings when necessary. These broadcasts are made twice a day, and oftener when hurricanes or severe storms are in progress.

We also have arrangements to get reports from almost every country north of the equator on weather conditions over the land. These exchanges are made mostly by radio with countries other than those in North America.

The first extensive daily exchange of weather reports with Europe and Asia was received about 10 years ago. In 1922, a representative of the French weather service came to this country to arrange for an exchange of weather reports between the United States and France. The French were to collect reports from about 80 stations scattered throughout Europe and Asia and relay the reports to us by radio twice a day. We, in turn, agreed to collect weather bulletins from about 100 weather stations in the United States, Canada, Alaska, and the West Indies and relay them to the European and Asiatic countries. In April of last year, the broadcasting of the European and Asiatic reports was transferred from France to the powerful English station at Rugby. We broadcast our reports over the big U.S. Navy stations at Annapolis and Arlington. Far eastern reports, including China, Japan, and the Philippines come by way of Manila.

So, you see, one of those big weather charts gives you an almost up-to-the-minute idea of weather conditions at almost any point in the northern half of the world.

When you understand that, you begin to grasp a little of the "mysterious art" of the weather forecaster.

There is nothing so mysterious about it after all.

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ANNOUNCEMENT: And that concludes another Chat With the Weather Man, brought to you through the cooperation of the United States Weather Bureau. We will have another Chat for you at this same time two weeks from today.

# **National Oceanic and Atmospheric Administration**

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