

CHATS WITH THE WEATHER MAN

RELEASE Friday, June 12, 1931.

NOT FOR PUBLICATION

SPEAKING TIME: 10 Minutes

ANNOUNCEMENT: Well, we are going to have a few cooling thoughts on the weather now. Your old Ob. Server has been to the United States Weather Bureau for a chat with the weather man, and it seems that they went deep into some cool subjects ——— Well, Mr. Observer? ———

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How many thunderstorms do we have here in a year? How long do they last? How deep does the frost go into the ground in this locality? What is the deepest it ever has gone?

Those are some of the questions which come to the United States Weather Bureau.

And those are not idle inquiries from "Ask-me-another" fans. Dr. Oliver L. Fassig, chief of the climatological division of the Bureau, tells me a power company wanted to know about those thunderstorms. In planning operations in a new locality, that company needed to know how many hours of thunderstorms it would have.

Builders of many kinds, of course, are interested in knowing how deep the frost penetrates. In laying pipes and foundations and the like, such information is essential. In fact, Dr. Fassig says that the rapid extension of road building projects throughout the country has brought so many requests from engineers and contractors about the frost line in various sections of the country that the Chief of the Weather Bureau took steps to find out how deep the frosts go in all parts of the United States.

True, in many localities, there is generally somebody who has a pretty good idea as to just how far down the frost goes. In some places, actual records have been kept over a number of years. However, if a contractor in one section undertakes a job in strange territory, he is often at a loss to find anybody who can tell him what he needs to know about the frost line.

Heretofore, there has been no way engineers and others could get this information accurately and promptly in many localities. Now, however, the Weather Bureau has made a systematic survey of the depth of frost from one end of the country to the other.

Right now, I have before me printed Weather Bureau charts prepared under the direction of Dr. Fassig and showing how deep the frost penetrates, on the average, in each State in the Union. Also another chart showing the deepest frost goes at hundreds of localities scattered from Ocean to Ocean and from the Canadian border to the Gulf.

But Dr. Fassig has done more than just map the frost line. He has worked out a rough general rule, by which anybody can tell about how deep the frost may be expected to go in any section of the country.

That is getting a little ahead of our story, however. To get the needed information was no small job. It was obtained through the Bureau's extensive organization of Section Directors, hundreds of regular weather observers, and its more than 5,000 cooperative observers. But in most cases, the weather men didn't have the information themselves. They just looked up the men who knew. The actual frost figures came from engineers and others. And, of course, the reliability of the replies varied a great deal.

Some of the most accurate replies, Dr. Fassig says, came from grave-diggers. Like Hamlet's grave-digger many of these men had followed their lugubrious calling in the same locality for thirty years or more. Working every day with pick and shovel the depth of the frost line seems to have been pretty well impressed on their minds and muscles.

Well, the Weather Bureau got more than 1300 replies covering every State. Dr. Fassig entered these estimates on the map of the country and connected up the points of equal depth by lines. As you would expect, those lines check up with the records of average winter temperature.

The chart as finally worked out shows that the zero line of no frost and the line of average winter temperature of 55 degrees extending through northern Florida follow our southern limits and the Pacific Coast to northern California.

Starting at this no frost line near the Gulf and going North, the frost penetrates deeper and deeper. Along the line from the Canadian border in Minnesota and North Dakota, where we have our coldest average winter temperatures, of 5 degrees, the frost penetrates fifty inches into the ground.

Or if you start at the no frost line in California near the Oregon boundary and go northeast toward northern Minnesota you find a similar difference. When you measure the distances on the map from the no-frost line in the South/the deepest frost line in the North, and from the no-frost line on the Pacific Coast east to the deepest frost line, you find they are about the same length, some 1250 miles.

What's more, the increase from points where the frost doesn't go into the ground at all to the points where it goes into the ground to a depth of fifty inches is at a fairly steady rate.

Dr. Fassig reduces his data to this simple rule: The rate of increase in the depth of the frost line is roughly one inch for every 25 miles from the Gulf northward and from the Pacific Coast toward northern Minnesota. That is, for every 25 miles north you go from the Gulf, you can generally count on the frost going one inch deeper into the ground. And the same for every 25 miles east from the California-Oregon boundary to northern Minnesota.

And also for each 25 miles north or east, as the case may be, the average temperature gets one degree colder. Right there, engineers and builders all over the country have a rough general guide for their calculations. Of course, local variations have to be checked up in the locality itself, but that is the rough rule.

Well, you say, but that frost one inch further down for each 25 miles north is the average. Engineers can't count on frost going no deeper than the average.

But Dr. Fassig has mapped the records and estimates of the greatest depths to which frost has been opened in the various parts of the country. Roughly, they are about twice the average.

However, this survey, Dr. Fassig, tells me is merely the first attempt to get the information which is of great value to a constantly increasing number of interests. There are records of Agricultural Experiment Stations, and other scientific measurements scattered here, there, and yonder, which it is hoped to compile and chart so as to give an even more detailed and accurate picture of frost conditions.

So you see, the United States Weather Bureau is almost literally digging up facts about our climate.

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ANNOUNCEMENT: You have just heard about the frost penetration survey, as outlined by Dr. Oliver L. Fassig, chief of the climatological division of the United States Weather Bureau. This is one of the chats with the weather man presented by Station \_\_\_\_\_ in cooperation with the United States Department of Agriculture. We will have another of these chats two weeks from today.

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# National Oceanic and Atmospheric Administration

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July 23, 2010