

CHATS WITH THE WEATHER MAN

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ANNOUNCEMENT: Before we get through, you may feel the salt spray in your face, or hear the rustle of leaves, for we are now going to have a breezy chat with the weather man. We are going to talk about the oldest and most universal way of measuring the wind, and how that system fits in with the terms used in our daily weather forecasts by the United States Weather Bureau.

When you read or hear such terms as "moderate" or "fresh" or "strong" in connection with predictions of winds in the weather forecast, do those terms have a definite meaning for you? Just what is the difference between a "light" wind and a "gentle" wind? How can you yourself tell whether the wind blowing outside is "gentle" or "light" or "fresh" or "moderate"?

Naturally, we all have a vague general idea of what we would call "light" wind and what we would refer to as "moderate." But you may be from a windier section of the country than I am. What you would call "light" I might refer to as "moderate". That is, we might differ that way, if we had to rely on our own feeling and judgment in the matter. But weather forecasts are not written in any such loose fashion. Weather words must have a definite meaning. And they must have the same meaning one place as another.

That is certainly true of our wind words. Mr. B. C. Kadel, chief of the instrument division of the United States Weather Bureau, tells me that in the reports of wind force received by the Weather Bureau from ships at sea the Beaufort scale of wind force is used. That "Beaufort Scale" may sound like something highly technical, but it is the system in world-wide use by seafaring men, and, as Mr. Kadel explains it, is very simple and understandable. And what's more it sounds usable for most any of us.

Of course, you know our Weather Bureau offices in this country are equipped with wind gauges or anemometers with cups that rotate in the wind and measure the force of the wind in miles per hour. These anemometers have errors which only since the development of wind tunnels in connection with aviation have become known at the higher velocities, and furthermore it is difficult to place them where they will experience the full sweep of the wind from all directions. It is hard to use ordinary mechanical anemometers on shipboard, especially when the wind is high and the ship is rolling and pitching and tossing. For that reason, seamen have stuck to the Beaufort scale, which relates to the effects of the wind itself.

Beaufort is the name of the man who worked out the simple system of classifying the winds according to the effects they produce. He was a British

naval officer back in the old sail-ship days. He didn't want to clutter up the ship's log with long-winded descriptions of the wind, so he devised a scale with 12 definite scale numbers running from zero, for calm, to 12 for hurricane.

The number 1, on Admiral Beaufort's original scale, stood for just enough wind to give steerage way to a British man-of-war, of his time.

No. 2, stood for "Light Breeze"; 3 for "Gentle Breeze"; 4 for "Moderate Breeze". Those terms were based on the set of the sails needed in the different strength winds. The light to gentle breeze was enough wind so that a well-built sailing vessel of the man-of-war type with all sails set would go in smooth water. 4 to 5, or "Moderate" to "fresh" breeze was the force of wind most advantageous for sailing with all sails drawing. 6 was "Strong breeze" and 7 "High wind" when it became necessary to reduce the spread of sail. 8 stood for a gale and 9 for a strong gale, when there had to be considerable reduction of sail. 10 and 11 were the numbers used to designate a "whole gale" and a "storm" when only closed reefed sails could be carried. Number 12 was the hurricane in which no sail can stand.

Well, the distinguished Admiral sailed toward the sun-set more than a hundred years ago. Sail ships of the type he knew have practically disappeared from the seas. But seaman under Beaufort, who learned to observe the effect of the wind on the sea and classify the winds accordingly to his scale, passed their lore on to younger sailors. In that way, the system he used has come on down from generation to generation to the present and is used by the many ships which report to the United States Weather Bureau.

Of course, on land we can't use the white-caps on the waves or other such wind effects as a guide in classing the winds, so specifications have been worked out for the benefit of us landlubbers on that same scale.

When smoke rises vertically, we see readily that it is calm. That is much the same condition old Admiral Beaufort found at sea when there wasn't enough wind for him to steer his sail ship.

The No. 1 on his scale corresponds to the strength of wind when we can tell the direction of the wind by the drift of smoke, but when there is not enough wind to move the ordinary wind vane. That is wind blowing about 1 to 3 miles an hour, as measured on the anemometer. A No. 2 wind on the Beaufort scale is the strength wind you get when there is just about enough wind for you to feel it on your face, and to make the leaves rustle, and to move the ordinary wind vane. That takes a wind of from 4 to 7 miles an hour. A wind like that, or anything less than that, is a "light" wind. When the daily weather forecast mentions light wind that is the force of wind you may expect.

If the forecast uses the term "gentle" winds, it refers to winds of from 8 to 12 miles an hour. When the leaves and small twigs on the trees are in constant motion or when there is enough wind to extend a light flag you have one of those gentle winds, which corresponds to No. 3 wind on the Beaufort scale.

And here is the way you tell a "moderate" wind of 13 to 18 miles an hour, corresponding to old Admiral Beaufort's No. 4. When the wind raises dust and loose paper and is strong enough to move small branches on the trees, you can classify that wind as "moderate" for that is the force of wind, the

forecaster means when he says "moderate,"

When the wind gets up to 19 to 24 miles an hour, the wind not only moves the small branches, but small trees that are in leaf will begin to sway. If you are where you can look at a river, or lake or pond, you will notice that on such inland waters, a wind of that strength will cause crested wavelets to form on the water. The forecaster calls that a "fresh" wind, corresponding to Beaufort's number 5.

The next step up in the forecaster's wind vocabulary is "strong". When the wind gets up to 25 to 31 miles an hour, it is classed as No. 6 on the Beaufort scale. A wind like that puts big branches on the trees in motion, and you hear it whistling through the telegraph wires, and umbrellas are hard to handle. When the wind gets up to No. 7, from 32 to 38 miles an hour, whole trees are in motion, and you find it hard to walk against the wind. Both 6 and 7 are included in what the forecaster calls "strong".

When the wind gets stronger than that, say when it breaks twigs off trees, and generally impedes progress, or up to where it knocks chimney pots off houses or strips slate off roofs, or does other slight damage to buildings, you have a "gale". A gale takes in Beaufort scale numbers 8 and 9, that is from 39 to 46 and 47 to 54 miles an hour.

That's about as high wind as we usually get inland; so "light", "gentle", "moderate", "fresh", "strong", and "gale" are the forecast wind terms we are most likely to see.

A No. 10 wind, of 55 to 65 miles an hour in which trees are uprooted, and considerable damage is done to buildings seldom happens inland. And a No. 11, from 64 to 75 miles an hour, which does widespread damage, very rarely happens. When such rare damaging winds as those two classes are expected, the forecasters have a word for them. "Whole gale" is the term used.

Of course, when the wind gets up above 75 miles an hour it is a "hurricane". When the wind gets to No. 12 or to hurricane force, most of us would probably describe it just about as General Sherman did war.

It is interesting, however, to observe the effects of our ordinary winds, and to try to classify them as "light", "gentle", "moderate", "fresh", or "strong", as the case may be, and to check up on these wind words in our daily weather forecasts.

ANNOUNCEMENT: You have just heard a chat with the weather man. This talk has come to you as a presentation of the United States Weather Bureau of the United States Department of Agriculture.

National Oceanic and Atmospheric Administration

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