

glass thermometer tube had slipped along the groove in the wood, making the indicated readings inaccurate, as the scale marks were painted upon the wooden background. Most surprising of all was the caption "Weather Bureau" found on several of these instruments. It was subsequently learned that legally the use of this caption cannot be denied so long as the "U. S." was not used also. Needless to say, the U. S. Weather Bureau is not connected in any way with the display of these instruments.

It is unfortunate that such defective and badly exposed thermometers are tolerated by the local authorities. Such abuse of public confidence is to be deplored. Most newspaper editors recognize the faulty character of such temperature data when the matter is presented to them in a sympathetic spirit. Here is a field of education in which the American Meteorological Society may render valuable service.—*A. H. Palmer.*

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#### ERRORS OF HOUSE THERMOMETERS.

Saranac Lake, New York, Winter 1919-20.

In the comparison of 197 outdoor household thermometers with a sling thermometer at temperatures ranging from 0 to -30 degrees Fahrenheit, it was found that there was a mean error of 3.2 degrees Fahrenheit as compared with the sling thermometer. Of this number 120 gave a reading too high, and 68 a reading too low, while 9 were correct at the observed temperature. The greatest error found was 30 degrees.—*H. I. Baldwin.*

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#### Weather by the Rule of Thumb.

From the Philadelphia Ledger.

That the mass of people refuse to believe that meteorology is an exact science is shown in that the long-range prophets of the weather to come during the next four months are now busily at their predictions. This indifference to a science which is quite as orderly, so far as a grasp on causation goes, as astronomy, is one of the mysteries of modern education. For it is more than a generation ago that all the school books that deal with physical geography set out the real facts about weather phenomena. And yet, while every one accepts as final all statements as to astronomical facts, weather lore is ignored and a ready recourse is had to any gray-bearded loon who pretends to read the signs of the times. Moreover, few seem to see the grotesque absurdity in the fact that the long-range forecasters who live within a few miles of each other predict absolutely opposite kinds of weather for the days to come. Old Bill Billkins, the squirrel hunter, tells you that the squirrels haven't stored up any nuts, and that the winter is, therefore, to be "open" and "without snow," while his neighbor, Squire Blower, assures the same gaping public that the buttonwood bark is thicker than ever before, because the trees anticipate a severe winter, while the pelt on the small game is heavier, in view of the zero temperatures that impend.

So it goes on with all sorts of adlepatated conjecture tying up certain admitted incidents to effects with which they have nothing whatever to do. Yet the gullibility of the public is such that "prophets" who contradict each other flatly seem to be able to keep a local reputation and a name without any trouble, and even make money at the game. Of course, the real fact is that the condition of vegetation or of animal life in the autumn only reflects past influences and tells in some measure what the seasonal conditions have been through which the plant life and the animal life have just passed. But neither twig nor tree, neither goose, nor gopher, has any insight into the future, nor can any one of them anticipate the weather to come. If leaves be luxuriant and linger long on the trees, if the bark be thick, if the animals be fat and the fur sleek and glossy and abundant, all these things relate wholly and unqualifiedly to the weather experienced in the winter, spring and summer preceding the present state of the objects whose condition is utilized by the would-be forecasters.

There is nothing in this yokel science of bark and beaver. And there is quite as little in the claims of those who use the planetary influences, as any boy or girl of sixteen, studying the average text book in any high school in the country, could tell. But the public loves to be fooled, and in nothing is it fooled so easily as by those who tell the weather to come by the rule of thumb.

#### MONTHLY WEATHER REVIEW, FEBRUARY, 1920 (ISSUED MAY 2).

This issue of the *Monthly Weather Review* contains 11 contributions, a few of which are very short, and 24 notes, abstracts, etc., 6 of the latter being on winter weather, and long-range forecasts. Synopses of the contributions follow:

##### PAPERS ON SLEET AND GLAZE ("ICE STORMS").

The freezing of rain onto wires, trees, and streets is so disastrous to telephone, telegraph, and power lines and radio-station aeriols, to trees, and to transportation facilities that such means as can be employed to combat the formation of ice should be made ready before an "ice storm" begins. This involves forecasting the conditions which will cause the glaze to form, *i. e.*, conditions such that liquid drops of water will fall from a relatively warm wind into cold air near the ground. The occurrence of sleet as well as the formation of glaze usually marks such a condition of the atmosphere and thus is a valuable (and noisy) index to glaze formation.

While the form of the precipitation reaching the earth's surface allows a fairly accurate surmise to be made as to critical temperatures aloft, actual observations by means of kites or airplanes, taken in conjunction with observations made at the surface, offer the best basis for "ice-storm" forecasts.

The first article indicates the general conditions under which sleet (and glaze) is formed, and the second discusses the actual meteorological features accompanying the storm of January 20 to 25, 1920, long to be remembered for the great destruction and inconvenience caused by the thick ice which formed over hundreds of thousands of square miles in the eastern United States.

**The nature of sleet and how it is formed.** C. F. Brooks. (pp. 69-71, fig.)

[AUTHOR'S SYNOPSIS.—Whereas in current practice in the United States, *sleet* is that form of precipitation which is not snow, rain, nor hail, an attempt to make a detailed descriptive and genetic definition seems advisable, and 30 cases of sleet are analyzed as a basis:

*Sleet*, a rattling type of ice precipitation formed in the free air, has the following characteristics: *Size*, smallest dimensions of largest pieces less than 6 mm. ( $\frac{1}{4}$  inch); *form*, angular, irregular, or nearly spherical; *structure*, non-granular ice, part or all of which is cloudy or bubbly, except in extremely small drops, not more than one clear layer.

A sleet particle may be (1) a snowflake, partly melted and refrozen, (2) a frozen raindrop, or (3) a frozen combination of snowflake, and raindrop or liquid (not undercooled) cloud droplets.

A generalized vertical section of sleet weather shows that sleet usually occurs with a cloud from which snow is falling through a stratum of air having a temperature above freezing and into air with a temperature below freezing.]

**The precipitation of sleet and the formation of glaze in the eastern United States, January 20 to 25, 1920, with remarks on forecasting.** C. L. Meisinger. (pp. 73-80, 18 charts.)

[AUTHOR'S SYNOPSIS.—An attempt is made, by means of accurate charts of precipitation during the previous 12 hours, current temperature, pressure, and lines of wind flow, in combination with such aerological data as could be obtained, to construct cross-sections of the lower 3 kilometers of the atmosphere, during the period January 20 to 25, 1920. From such charts are shown the actual processes which produce rain, sleet, and snow, separately and in combination, in such a manner as to produce the ice cover, which is called an "ice storm." The condition is, briefly, a cold northerly wind underrunning a warm southerly current, forcing the latter aloft. The vertical distribution of temperature,