St. John, N.B., March 20; Prince Edward Island, April 15; Godbout, on the north shore of the mouth of the St. Lawrence, May 21; Point Rich, Newfoundland, May 1; and Greenly Island, off Labrador, May 20. In the Mississippi valley, Prof. W. W. Cooke has ascertained that robins usually winter north to about latitude 39°, but that the unusual cold of January, 1884, drove the bulk of them south of the parallel of 37°. Returning, the regular advance began March 9, and in a single week they spread over Illinois and eastern Nebraska to latitude 41° 51′; March 16 there was a slight advance in Iowa; on the 19th and 20th they pushed forward in Iowa, Illinois, and Wisconsin (but not in Nebraska), to latitude 43°; March 21 there was a sudden spreading over Wisconsin to latitude 45°. In the Red-river country, latitude 47° was attained April 3; and one week later the first robin of the season sang at Oak Point, Manitoba, latitude 50° 30′. From Mr. Belding's notes, it appears that the western race of the robin (Merula migratoria propinqua) winters more or less abundantly throughout the greater part of California, moving northward in February, March, and April. Its nest and eggs were found at Seattle, Washington Territory, May 1. In Alaska our robin has been seen in the Chilkat region as early as the end of April, and at Nulato about the middle of May.

The following statement shows approximately the average dates of arrival, in the latitude of New-York City and southern Connecticut, of a number of common and well-known birds. The yearly variation is considerable, and is greatest in the early-comers, amounting in some cases to upwards of two weeks. The robin (Merula migratoria) may be expected about the middle of February; wood-thrush (Turdus mustelinus), first week in May; brown thrasher (Harporhynchus rufus), May 1; catbird (Mimus Carolinensis), May 1; blue-bird (Sialia sialis), early in February; house-wren (Troglody tesaedon), May 1; yellow-rumped warbler (Dendroeca coronata), middle of April; barn-swallow (Hirundo erythrogastra horreorum), April 25; scarlet tanager (Pyranga rubra), May 10; red-eyed vireo (Vireo olivaceus), May 6; rose-breasted grosbeak (Zamelodia ludoviciana), May 12; indigo-bird (Passerina cyanea), May 12; chewink (Pipilo erythrophthalmus), May 1; bobolink (Dolichonyx oryzivorus), May 10; red-winged blackbird (Agelaeus phoeniceus), March 1; Baltimore oriole (Icterus galbula), May 8; king-bird (Tyrannus Carolinensis), May 8; pewee (Sayornis fuscus), early March; whippoorwill (Caprimulgus vociferus), May 1; night-hawk (Chordeiles pepetue), May 10; chimney-swift (Chaetura pelasgica), latter part of April; humming-bird (Trochilus colubris), May 5; kingfisher (Ceryle alcyon), flicker (Colaptes auratus), and fish-hawk (Pandion haliaetus Carolinensis), late in March.

TORNADOES, AND HOW TO ESCAPE THEM.

"Blow, winds, and crack your cheeks! Rage! blow!
You cataracts and hurricanoes, spout
Till you have drench'd our steeples, drown'd the cocks!
. . . . . .
Nay, get thee in. I'll pray, and then I'll sleep."

SHAKSPEARE.

TORNADOES are among the most characteristic features of the central states of the Union. Their opportunity comes when a broad cyclonic disturbance of our regular westerly winds brings cold air of the north-western plains down to meet warm southerly winds from the Gulf of Mexico. A moderate number of miles east of the average contact-lines of these two currents, the tornadoes are formed, when they appear at all. A number of them frequently occur at about the same time, for the contrasts of temperature and moisture that permit the development of one are generally widespread enough to produce several more. Fig. 1 illustrates the tracks of the tornadoes of Feb. 19, 1883, when the southern states were swept over by

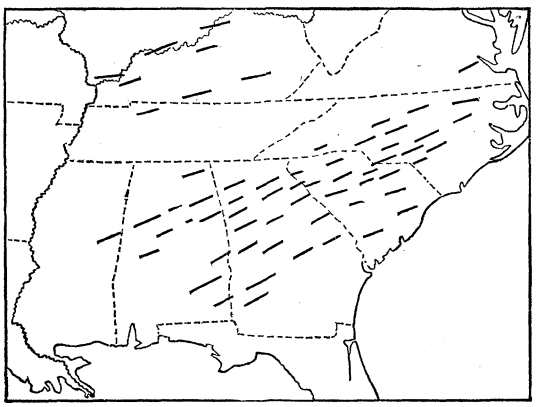

FIG. 1.

a large number of these storms, — in Kentucky and Alabama about noon, in eastern Alabama and Georgia during the afternoon, and in the Carolinas

after sunset, — the progress of their region of occurrence across the country corresponding to the passage of the broad cyclonic storm that gave them birth. The signal-service report states that about a thousand persons were killed, more than twice as many wounded, and three or four million dollars' worth of property destroyed, by these storms on this single day. This was the first and severest visitation of the year.

The distinguishing mark of the tornado is its dark, pendent funnel-cloud at the centre of the most violent winds. The rules published by the signal-service for escaping from such a storm, when it is seen approaching, are based on the regularity with which tornadoes move to the north-east, or at least to some point between east and north, along a tolerably straight course, at a rate of about thirty

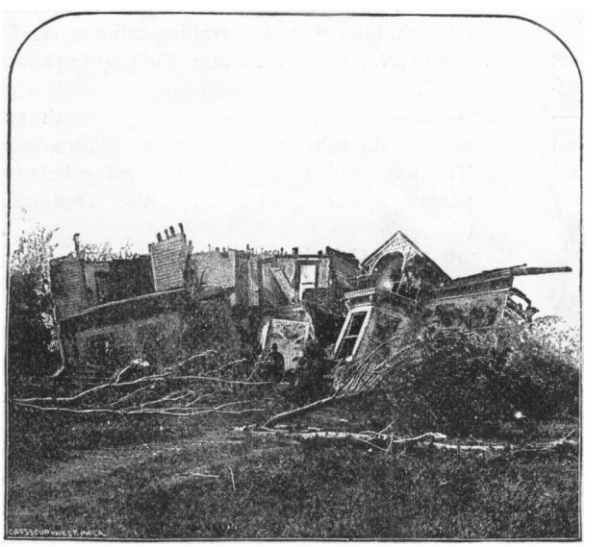

FIG. 2.

miles an hour. If seen to the north-west or south-east, the tornado will, in all probability, pass to one side of the observer. If seen in the south-west, a few moments' watching will serve to discover whether the funnel-cloud is advancing so as to pass north-west or south-east of the observer; then, without waiting too long, let him run to the open side. If the funnel-cloud seems to come directly toward the observer, he should run to the north-west, because the winds on that side are a little less violent than on the other, and the chance of escape there is correspondingly better. In regions where tornadoes occur frequently, every house should be provided with an underground chamber or dug-out, easily reached, and guarded by a strong grated door. This is the only retreat on the storm-path in which safety can be found. The effect of a tornado on the buildings of a western town is seen in fig. 2, copied from a photograph taken by D. H. Cross at Grinnell, Io., shortly after its destruction on June 17, 1882.

BLOOMING-TIMES FOR FLOWERS.

"And 'tis my faith that every flower
Enjoys the air it breathes."
WORDSWORTH.

THE pressure brought to bear on every branch of industry in this rapidly moving nineteenth century has not failed to produce its effect on students of natural history; and comparatively few of the present active workers find time to leisurely ramble, observe, and philosophize, as, for example, Gilbert White did a century ago. Yet there is scarcely a lover of nature, however closely confined to his study or laboratory, who does not listen for the first twitter of the bluebird, or delight in the first bunch of violets brought by the spring, and find himself cheered by the chirp of the last robins, and the flowers of the witch-hazel, on the threshold of winter. For such and all lovers of nature, this effort to indicate the usual time at which a few typical plants of the different seasons may fairly be said to be coming into full bloom is made as a reminder of seasons that are gone, and a prompter for those to come.

Like the birds, flowers vary much in their habits. Some stay with us through the entire open season, and push their heads up at the very edge of the snow or in the heat of midsummer; some come at their appointed time, last but a few days or weeks, and disappear completely, be the season what it may; and others, usually regular in their blooming, feel the stimulus of a long, warm autumn, like the last, and anticipate the following spring by unfolding more or less profusely.

Every region has its own climatic peculiarities and its proper spring and autumn; and, though the limits of these may vary somewhat from year to year, there is usually some close observer of nature to be found, who prides himself on knowing a sheltered place where he is certain to find the trailing-arbutus or pasque-flower at about the same