reached on March 20 was only one-tenth of a degree higher than the lowest for the season. It is hardly to be expected that Wauseon will continue furnishing such records as this. The mean daily range of temperature over the whole state was 19.2°, which is also unusually great.

The amount of precipitation during the month was less than is usual for March. The mean depth of rain or melted snow was 2.18 inches, while the mean of observations extending over several years is 3.17 inches for the month of March. Rain or snow fell, on an average over the whole state, on twelve days in the month. A thunder-storm of considerable violence, and covering a considerable area, occurred on the evening of the 14th. Westerly winds prevailed.

Missouri weather-service, St. Louis.

*Weather report for April.* — The average temperature of April has been 56.7° at St. Louis, which is about half a degree above the normal of Engelmann's series. Since 1837 the mean April temperature has once reached 66.8° (in 1844), and in 1857 it fell to 44.1°, a range of 22.7°. The extremes during the last month have been 32.2° (on the 24th) and 85.6° (on the 14th), which are very ordinary temperatures. In April, 1857, the lowest daily minimum was 18°; while in the years 1838, 1843, and 1855, the highest maximum reached was 93°. In the state the maximum temperature has been the highest in the central part, Glasgow reporting 93°, Miami 92°; while at Cairo, Ill., the highest temperature reached was 84.5°, that at Keokuk being 85°. The lowest minimum reported was 22°, at Centreville; and twelve stations out of twenty-one reported the minimum as 32° or below.

The rainfall at the central station has been 2.62 inches, the normal rainfall being 3.70 inches. At the St. Louis water-works, however, the rainfall has been 3.87 inches. The rainfall has been heaviest, or more than 5 inches, in the extreme south-eastern part of the state. In the central-western part, and in a narrow belt extending therefrom to Macon and Shelbina, the fall has been less than 1 inch, while in the north the fall has been over 2 inches. At four P.M. on the 14th a severe local storm, which was apparently an incipient tornado, did considerable damage at Hannibal. Its track was about three hundred feet wide. Similar storms, with hail, were observed seven miles west and ten miles north of Mexico. A small tornado having a width of fifty to seventy feet, passed through the western part of Pleasant Hill between half-past seven and eight A.M. A portion of a rail fence was carried eight feet, and set down without materially changing the relative positions of the rails.

In the dry area of the past month, where ice-crust did damage to the wheat during the winter, additional damage has been done by the drought and high winds of the past month. At Savannah not over one-tenth of a crop is left, and farmers are planting the ground in corn. Meadow is also light. In the south-eastern part, however, the plentiful rains have repaired to some extent the damage done to wheat, and it is turning out better than was expected. Thus far the fruit-crop has not been materially injured by frost, the cool and uniform temperature having been very favorable.

State university of Kansas, Lawrence.

*Weather report for April.* — During this month the temperature was high, the rainfall was a full two-thirds of the normal quantity, and the cloudiness, wind-velocity, and humidity were each considerably below the averages. The only frost was a harmless hoar-frost on the 24th. All kinds of fruit-trees were in blossom from the 10th to 30th.

Mean temperature, 57.18°, which is 3.17° above the average April temperature of the fifteen preceding years. Highest temperature, 89.5°, on 13th; lowest, 35°, on 24th; monthly range, 54.5°: mean at 7 A.M., 51.02°; at 2 P.M., 67.7°; at 9 P.M., 55°.

Rainfall, 2.12 inches, which is 0.92 inch below the April average. Rain fell on nine days. There was no snow. There were two thunder-showers. The entire rainfall for the four months of 1883 now completed has been 6.44 inches, which is 1.31 inches below the average for the same period in the past fifteen years.

Mean cloudiness, 40.11 % of the sky, the month being 8.80 % clearer than the average. Number of clear days (less than one-third cloudy), 16; entirely clear, 6; half-clear (from one to two thirds cloudy), 9; cloudy (more than two-thirds), 5; entirely cloudy, 2: mean cloudiness at 7 A.M., 45.67 %; at 2 P.M., 43.33 %; at 9 P.M., 31.33 %.

Wind: S.W., 22 times; S.E., 20 times; N.W., 17 times; S., 13 times; E., 3 times; W., 3 times; N.E., 12 times. The entire distance travelled by the wind was 12,936 miles, which is 1,248 miles below the April average. This gives a mean daily velocity of 431 miles, and a mean hourly velocity of 17.96 miles. The highest velocity was 50 miles an hour, on the 14th. Mean velocity at 7 A.M., 15.60 miles; at 2 P.M., 22.40 miles; at 9 P.M., 15 miles.

Mean height of barometer, 28.957 inches; at 7 A.M., 28.969 inches; at 2 P.M., 28.917 inches; at 9 P.M., 28.984 inches; maximum, 29.473 inches, on 24th; minimum, 28.289 inches, on 22d; monthly range, 1.184 inches.

Relative humidity: mean for month, 53.33; at 7 A.M., 64.7; at 2 P.M., 36.7; at 9 P.M., 58.6; greatest, 100, on 5th; least, 10.5, on 17th and 24th. There were two fogs.

## *NOTES AND NEWS.*

The first meeting of the Ohio state forestry association was held in Cincinnati, April 25 and 26. Several papers upon tree-planting and forestry were read; the most elaborate, based upon the preliminary publications of the tenth census, being that of the United States commissioner of agriculture. The meeting, however, if we may judge from the meagre reports published in the Cincinnati papers, produced no new facts about forests or forest management, and quite failed to arouse any local enthusiasm.

It is difficult to decide how far these forestry conventions, of which several have been held during the past year or two in different parts of the country, serve the cause their promoters desire to foster. Forest preservation has become, from various points of view, a question of great national importance for the United States. Economists are properly alarmed at the prospect of a speedy exhaustion of some of our most valuable varieties of lumber, although the more serious dangers which threaten the country through the effects of improper forest destruction upon the flow of rivers and agricultural prosperity have hardly yet received proper attention.

Conventions of self-termed 'friends of the forest' have thus far failed to bring about any reform in the

management of the forests of the country, whether private, or situated on the public domain. But as such meetings serve to keep the general subject before the public, it would not be fair to say that they have not some value. Forest orators at these meetings invariably deplore the want of an American system of forestry, and declare that such a system must be provided at once. We are not sure that we exactly know what they mean by an American system of forestry (it would indeed be an elastic system which would be equally applicable to the forests of Florida and Michigan); but it is safe to predict, that, if our forests are ever managed under any sensible system which will secure the greatest benefit from them for the whole community, such a system will be reached through scientific investigation, quietly pursued along lines of definite research, and not by the teachings of enthusiasts who attend conventions, and find it easy to tell us all about forests, and what they do in Europe to preserve them.

— At the meeting of the Washington anthropological society, held May 1, Mr. Albert S. Gatschet gave an account of his recent journey to the Shetemacha Indians in southern Louisiana, near and on the Gulf coast. Once these people were very powerful in this region; but they are now reduced to a handful, very much mixed, the younger ones even refusing to learn the mother-tongue. Many of their old practices yet prevail; but the innovation of new ways and words upon the old gives a most instructive lesson upon the growth of civilization. At the same meeting, Professor Cyrus Thomas made a report upon a map of mound distribution which he is preparing under the direction of the Bureau of ethnology. The plan has been to collect and classify from every available source the mounds enumerated in each state where they exist. From these data the map has resulted.

— The mathematical section of the Washington philosophical society, April 26, heard the conclusion of Mr. Kummell's discussion of alignment curves, and Prof. A. Hall on The determination of the mass of a planet from the relative observation of two satellites. May 9 Mr. M. H. Doolittle read a paper on Infinitesimals and infinites, which gave rise to considerable discussion as to the true meaning of these terms. Mr. E. B. Elliott then explained the construction of perpetual calendars.

— The Philosophical society of Washington, at its meeting, May 5, listened to Mr. H. A. Hazen on Hygrometric observations, and Mr. E. J. Farquhar on Dreams in their psychological relation.

— The Natural history society of Toronto has just elected as office-bearers for the coming year, Dr. Brodie, president; Messrs. Pierce and Seaton, vice-presidents; Mr. Williams, recording secretary; Mr. Clare, corresponding secretary; and Mr. Mosey, curator and librarian. The question of the usefulness of the English sparrow was brought up at the last meeting by Mr. Henry Melville, who urged the society to petition the Canadian government to furnish such material assistance as might enable the society to secure practical results.

— At a meeting of the Department of science and arts of the Ohio mechanics' institute, held May 10, Mr. George W. Bugbee read a paper on the Manufacture of small fire-arms, which was illustrated by models and blackboard drawings; and Dr. F. Roeder exhibited a method of purifying muddy water by means of dyalized iron.

— At the meeting of the Biological society of Washington, May 11, communications were made by Prof. L. F. Ward, on some hitherto undescribed fossil plants from the lower Yellowstone, collected by Dr. C. A. White in 1882; by Mr. Frederick W. True, on a new pygmy sperm-whale from the New Jersey coast; and by Dr. Thomas Taylor, on Actinomykosis, a new infectious disease of man and the lower animals, with exhibition of a portion of the diseased viscera of a dog containing specimens of the fungus Actinomyces.

— The annual report of the North Carolina agricultural experiment station is very largely composed of the results of analyses of commercial fertilizers, and of amateur field-experiments on their use. Some of these have been previously published in the form of bulletins, and have been noticed in our columns. A few fodder-analyses are also given, among them some of the by-products of cotton-seed and rice, an account of which appears in another column; and a field-experiment with cotton is reported, giving the interesting result that too heavy manuring with nitrogen (on poor land) actually decreased the crop of cotton, presumably by unduly stimulating the growth of the vegetative organs.

— A meeting of the United States naval institute was held at Annapolis on May 10, at which the prize essay of '83 was discussed, and Professor Charles E. Munroe read a paper on the Drying of gunpowder magazines.

— Mr. E. W. Nelson, who arrived in Washington last week for the purpose of completing his report upon the ethnology and zoölogy of Alaska, has suffered a decline in health, and will be forced to return to Colorado immediately.

— Dr. Tarleton H. Bean will go to London in June, to be present at the Fisheries exhibition, and to prosecute some important studies in ichthyology in co-operation with Professor Goode. He will probably visit the principal museums on the continent.

— The treasurer of the American committee of the Balfour memorial fund acknowledges the following subscriptions: Dr. S. Weir Mitchell, Philadelphia, $25; Roswell Fisher, M.A., Cantab, Montreal, $5; Dr. T. W. Mills, McGill college, Montreal, $2. Previously acknowledged, $486.25.