

PRECIPITATION.

The distribution of the precipitation during April, 1922, is graphically shown on Chart IV of this REVIEW.

In general the month had decidedly more rainfall than is normally received in April over a large part of the central valleys and portions of the near Southwest. This was particularly true from central Texas northeastward to the lower Ohio Valley, where the monthly amounts ranged up to as much as 18 inches, and in portions of Kansas, Oklahoma, and nearby points, the precipitation was the greatest of record for April. Precipitation was also above normal in the Rocky Mountain and Plateau regions, and locally in the South Atlantic States.

It was less than normal in most Atlantic coast sections, along the East Gulf coast, over the Florida peninsula, and generally over California, Oregon, and portions of adjoining States. In central and southern Georgia and generally over Florida, the month was distinctly dry, no precipitation occurring during the entire month in portions of southern Florida, and no material rains occurring over large areas in those States.

SNOWFALL.

As may be expected in April, snow occurred over a wide extent of the country, but the amounts were usually

small save in the mountain districts of the West and from the Lake Superior region westward and southwestward to the Dakotas and Iowa and over the northern portions of New York and New England.

In the western mountains snow was heavy, the total falls ranging up to 4 feet or more at some of the higher elevations in Colorado, Wyoming, and adjacent States, and nearly as heavy falls were reported from many of the higher elevations of the Plateau region. In the Cascades heavy snows were reported from the higher elevations of Washington, with somewhat less in Oregon. In the Sierra of California the amounts were usually about the average for April.

RELATIVE HUMIDITY.

For the country as a whole, the relative humidity was distinctly above normal, only a few localities having averages appreciably less. Notable excesses were reported from the Rocky Mountain and Plateau regions, and they were only slightly less in the Ohio, Mississippi, and lower Missouri valleys. Important negative departures were observed in the Great Valley of California, and there were small areas having humidity averages for the month less than normal in the Appalachian Mountains, the Middle Atlantic States, and the Florida peninsula.

Severe local storms.

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the annual report of the chief of bureau.]

Place.	Date.	Time.	Width of path.	Loss of life.	Value of property destroyed.	Character of storm.	Remarks.	Authority.
Currie, Tex.....	3	11 A. m.....	Yards.			Wind and rain....	Several derricks wrecked, a theater and other buildings demolished. Loss estimated at thousands of dollars.	Times-Herald (Dallas, Tex.).
Pike County, Ala.....	5					Tornado.....	One person injured and a dwelling wrecked....	Official U. S. Weather Bureau.
Central Georgia.....	5	P. m.....				Wind, rain, hail....	Heavy crop loss and considerable property damaged.	Macon Telegraph (Macon, Ga.).
Indianapolis, Ind.....	6					do.....	Two persons injured and several thousand dollars damage to property.	Indianapolis News (Ind.).
Woodward, Iowa (near).....	7			1	\$250,000	Tornado.....	Several persons injured and property damage heavy.	Belvidere Republican (Ill.).
Council Bluffs, Iowa.....	7				50,000	Hail.....	Greenhouses, windows, autos, and street-car windows damaged.	Do.
Janesville, Wis.....	7	A. m.....				Electric and wind.....	Property considerably damaged.....	The Capital Times (Madison, Wis.).
Northern Texas and southern Oklahoma.	8	A. m.....		17		Tornadoes.....	Property loss heavy. Wire communication badly crippled and scores of persons injured. Damage estimated at hundreds of thousands of dollars.	Dallas Morning News (Tex.), Wichita Eagle (Kans.).
Nodaway County, Mo.....	8	P. m.....				Wind.....	Principal damage to wire systems and farm buildings.	Daily Democrat (Maryville, Mo.), St. Joseph New-Press Mo.
Murphysboro, Ill.....	8	P. m.....				do.....	Damage to barns and fences amounting to several thousand dollars.	Cairo Evening Citizen (Ill.).
Davenport, Iowa, and vicinity.	8-9					do.....	Telephone and telegraph service crippled, glass broken, trees down, and minor property damage from high wind.	Official U. S. Weather Bureau. The Democrat (Davenport, Iowa). Rock Island Argus (Ill.).
Denver, Colo. (near).....	9					Gale and snow....	Hundreds in autos marooned in roads suffer from severe cold.	The Post (Denver, Colo.).
Chicago, Ill.....	9					Gale.....	General damage done; several injured. Wind velocity, 48 miles.	Herald-Examiner (Chicago, Ill.). Official U. S. Weather Bureau.
Memphis, Tenn.....	10					Wind.....	Material damage to river craft, one building unroofed, and telegraph service out of use.	Chattanooga News (Tenn.).
Green, Clark, and Champaign Counties, Ohio.	10			1	100,000	Tornado.....	Extensive property damage; 5 persons injured...	Ohio State Journal (Columbus, Ohio).
Eastern Colorado.....	10					Wind and snow....	Railway and telephone service paralyzed.....	The Pueblo Chieftain (Pueblo, Colo.).
Springfield, Mo. (12 miles northwest of).	10			2	100,000	Tornado.....	Heavy property damage; many persons injured.	Official U. S. Weather Bureau.
Eastern Tennessee	10-11					Wind.....	Considerable minor damage.....	Do.
Kansas, Oklahoma, Missouri, Texas.	10-11			2	400,000	Wind and flood...	Heavy general damage; 7 persons injured.	Official U. S. Weather Bureau. Evansville Press (Ind.).
Monroe, Wis.....	11				100,000	Wind.....	12 barns damaged and many farm buildings wrecked.	Evening News (Monroe, Wis) Official U. S. Weather Bureau.
Augusta County, Va.....	11					do.....	Silo damaged and also other farm buildings....	Staunton News-Leader (Va.).
Middle Tennessee.....	14	P. m.....			300,000	do.....	Destruction of wide extent. Many buildings wrecked, several persons injured, and stock killed.	Official U. S. Weather Bureau.
Belleville, Ill.....	14	A. m.....				do.....	School demolished and thousands of dollars damage to dwellings.	Belvidere Republican (Ill.).

Severe local storms—Continued.

Place.	Date.	Time.	Width of path.	Loss of life.	Value of property destroyed.	Character of storm.	Remarks.	Authority.
St. Louis, Mo., and vicinity..	14	A. m.	Yards.		150,000	Wind, rain, hail...	Buildings, telephone, telegraph lines, and trees damaged.	Belvidere Republican (Ill.).
Louisville, Ga.....	15					Wind.....	Barns, fences, houses, and crops; also communication lines damaged.	Official U. S. Weather Bureau.
Central and eastern Ohio.....	15-17			3		Wind and floods..	Storm leveled barns, sheds, and fences. Many families forced to leave homes. Wires down.	Plaln Dealer (Cleveland, Ohio).
Iola, Kans., and vicinity.....	16	P. m.			100,000	Wind, hail, and thunderstorm.	Damage to many industries.....	Official U. S. Weather Bureau. Wichita Beacon (Kans.). Wichita Eagle (Kans.).
Crawford and Franklin Counties, Ark.	16	P. m.				Wind.....	Severe damage to property and overhead wires..	Fort Smith Times Record (Ark.).
Central States.....	16-20			30		Tornadoes and floods.	Several hundred persons injured and property and property damage running into millions. Illinois and Indiana hardest hit.	Illinois State Register. Evansville Courier (Ind.). Times (Toledo, Ohio). Brooklyn Eagle.
Iola, Kans. (west and north of)	17				20,000	Wind and rain...	All kinds of property damaged.....	Official U. S. Weather Bureau.
Royal Center, Ind.....	17					do.....	Damage to buildings from winds and much flooding. Extent of damage not known.	Do.
Buffalo and lower Lakes regions.	19-20					Gales.....	Minor damage to vessels and along water fronts, and also to buildings. 80-mile wind at Buffalo.	Official U. S. Weather Bureau. Journal (Milwaukee, Wis.). Commercial (Buffalo, N. Y.).
Groesbeck, Tex.....	24	P. m.				Wind.....	Considerable damage to trees, awnings, etc. Extreme velocity of wind, 84 miles.	Groesbeck Journal (Tex.). Official U. S. Weather Bureau.
Fort Worth, Tex.....	25			11	600,000	Wind and floods..	1,500 homeless. Heavy property losses.....	Journal of Commerce (Chicago, Ill.). Herald (Palestine, Tex.).

STORMS AND WEATHER WARNINGS.

By EDWARD H. BOWIE, Supervising Forecaster.

WASHINGTON FORECAST DISTRICT.

The morning of the opening day of the month a disturbance of considerable intensity had its center south of Cape Cod and was moving northeastward, attended by general snows and rains in the North Atlantic States, the Lower Lake region, and the upper Ohio Valley. Storm warnings were displayed the last day of the previous month and they were changed to warnings of northwest winds and gales the morning of the 1st at and between Delaware Breakwater and Nantucket, and on the 2d warnings were continued for the same region. This storm was accompanied by gales on the Middle Atlantic and New England coasts and it was followed by much colder weather in the Washington forecast district, frost and freezing temperature forecasts being required on the 2d and 3d, except on the South Atlantic and Gulf coasts. For a week following this disturbance the pressure continued high in the Eastern States, although showery weather occurred on a number of days.

In the Western States, however, the pressure remained low and there was a succession of disturbances over the west and southwest which moved northeastward. Among them the most important and at the same time interesting storm made its appearance over Mexico on the morning of the 7th and moving north-northeastward it crossed into Texas during the night of the 7th and moved thence rapidly to the region of the Great Lakes, where it was dissipated. This disturbance was attended by general rains over the area traversed by it, and it caused a number of severe local wind storms over the southern Plains States. While this disturbance was moving northeastward another was in the northwest, whence it moved southeastward and the morning of the 9th it was central over eastern Colorado. From Colorado it advanced east-northeastward and the disturbance gained greatly in intensity during the 10th. On the morning of the 11th its center was over Lake Michigan and gales had become general in the great central valleys and the region of the Great Lakes with widespread precipitation.

At the time when this disturbance was central over the Great Lakes, southwest storm warnings were ordered displayed on the Atlantic coast at and north of Cape Hatteras, and strong shifting winds and gales were more or less general along this stretch of the coast. The pressure remained low in the southwest during the 11th to 14th, and made necessary the issue of forecasts of precipitation for considerable areas of this forecast district. On the 14th another disturbance appeared in the far northwest, moved southeastward to the central Rocky Mountain region, and thence passed northeastward and reached the St. Lawrence Valley on the 18th. While in the far West this disturbance caused snows in the Rocky Mountain region and later it was attended by general precipitation in the Great Central valleys and the Eastern and Southern States. On the morning of the 17th when the center of this disturbance was over the Great Lakes, southwest storm warnings were ordered displayed on the Atlantic coast at and north of Cape Henry, and on the morning of the 18th these warnings were continued displayed. Following this disturbance the temperature fell decidedly, and frost warnings were issued the morning of the 18th for the lower Lakes region, the Ohio Valley, Tennessee, and the mountain districts of the Middle Atlantic States.

On the 19th, when a disturbance was central over the Great Lakes, southwest storm warnings were displayed on the Atlantic coast at and north of Sandy Hook. This disturbance passed down the St. Lawrence Valley during the night of the 19th and it was followed by strong westerly winds and gales on the north Atlantic coast, the highest velocity reached being 72 miles an hour at New York City. From the 19th to the end of the month the pressure remained high and the weather generally cold for the season in the Eastern and Southeastern States and forecasts of frosts were required on a number of days for the Ohio Valley, the lower Lake region, and the Atlantic States as far south as the Carolinas. The frosts were severe in the Middle Atlantic States and the upper Ohio Valley, where vegetation was sufficiently advanced to be injured.

Northwest storm warnings were ordered on the 27th for the Atlantic coast at and north of Delaware Break-