

and thereby were caught in the open seas and unable to obtain shelter in a safe harbor.

The disturbances were attended by generous rains west of the Cascade Mountains, notwithstanding which fact most of the rivers in that section were but little affected and maintained lower stages than usual under such conditions. The storms, after making their appearance off the Washington coast, in nearly every instance moved northeasterly over British Columbia, and on this account the rainfall in the intermountain section of the North Pacific district, was much less than usual.

The temperatures were uniformly mild, and in the principal agricultural sections of western Oregon and western Washington, no killing frosts have yet occurred.—*E. A. Beals, District Forecaster.*

SOUTH PACIFIC FORECAST DISTRICT.

The month opened with a moderate disturbance over the north Pacific coast accompanied with high southeasterly wind and rain as far south as San Francisco. The disturbance moved eastward along the international boundary. A succession of disturbances passed northward during the month, most of them too far north to influence conditions south of San Francisco. The month, as a whole, showed a deficient rainfall in the southern and central portions of the State. In the vicinity of San Francisco less than half the normal amount of rain fell, and in California, south of the Tehachapi, no rain fell during the month. The absence of rain at this time materially affects crop conditions. A heavy "norther" was re-

ported in the valleys of the southern portion of the State on November 11. A marked disturbance occurred on November 15 and thunderstorms were reported in the northern portions of the State. The month was singularly free from frosts.—*Alexander G. McAdie, Professor and District Forecaster.*

RIVERS AND FLOODS.

River conditions during November did not differ materially from those of the preceding month. The Mississippi River and its tributaries showed but slight change; in the northern portion there was a slow and steady fall throughout the month; in the southern portion there was a slight rise during the first half and a slow fall during the last half of the month.

The rivers of the Atlantic slope were highest during the middle of the month and with the exception of the Cape Fear, Pedee, and Wateree rivers showed but slight changes.

On November 1, 1904, a new river gage was put in service at Riverton, Ala.; the zero of the new gage is 1.2 feet lower than that of the gage used previous to November 1.

The highest and lowest water, mean stage, and monthly range at 251 river stations are given in Table VII. Hydrographs for typical points on seven principal rivers are shown on Chart V. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.—*E. B. Garriott, Professor.*

CLIMATE AND CROP SERVICE.

By Mr. JAMES BERRY, Chief of Climate and Crop Division.

The following summaries relating to the general weather and crop conditions during November are furnished by the directors of the respective sections of the Climate and Crop Service of the Weather Bureau; they are based upon voluntary reports from meteorological observers and crop correspondents, of whom there are about 3300 and 14,000, respectively:

Alabama.—Weather favorable for gathering late crops. Long drought broken early in month. Beneficial rains early and latter parts of last decade, but precipitation generally slightly deficient. Several light freezes. Comparatively little plowing done. Some wheat and oats up to good stands by close of month; small acreage in oats, considerably more to be sown during winter. Cotton practically all picked by 15th, yield slightly above average. Corn all housed, yield good. Minor crops fairly good.—*F. P. Chaffee.*

Arizona.—Dry weather prevailed generally during November. Temperature averaged slightly below normal. Frost did little damage in central and southern counties, but suspended all growth in northern counties. Planting was in progress, except in the northern section of the Territory, where the ground was too dry for plowing. Dry feed was plentiful on ranges; stock was in good condition for the approaching winter, and farming conditions were generally favorable.—*H. K. Holcomb.*

Arkansas.—Temperature was about normal, rainfall deficient. Month favorable for gathering outstanding crops, but too dry for fall plowing. Cotton picking and corn gathering carried on without interruption, and by close of month only small per cent remained in field. Less than usual acreage sown to fall grains, but where sown they did fairly well. Stock not doing well, owing to scarcity of water and to lack of good pasturage.—*O. C. Burrows.*

California.—Weather conditions were about normal, except in southern California, where abnormally high temperatures occurred, accompanied by drying winds. The rainfall in the central and northern sections was abundant for the season, and much progress was made in plowing and seeding. The drought seriously retarded farming operations in the southern sections. Early sown wheat made good growth. The grain acreage promised to be larger than usual, except in the south. Orange picking and shipping commenced on the 1st.—*Alexander G. McAdie.*

Colorado.—The month was favorable for the securing of crops, but was too dry for fall plowing. Grass was reported good, except in the Arkansas Valley, the south-central counties, and on the Divide, where it was reported fair. Stock water was generally sufficient, and at the end of the month cattle, horses, and sheep were in good condition.—*F. H. Brandenburg.*

Florida.—The month averaged cooler and wetter than the normal. Farm work was advanced. The last of the cotton crop was picked and minor crops harvested. The shipment of citrus fruits continued active,

a large portion of the crop having been marketed. The condition of vegetables was improved, except in small areas where precipitation was deficient. Frost formed over all districts except the southern, and freezing temperatures occurred over portions of the western and northern districts; no damage.—*A. J. Mitchell.*

Georgia.—Unusually favorable weather for farming operations prevailed. Harvesting practically completed; yields generally good. Cotton above average, quality exceptionally fine. Moisture sufficient for fall plowing; seeding progressing rapidly, seed germinating and growing nicely. Increased acreage sown to oats, rye, and wheat. Low temperatures with killing frost on 14th to 18th and 27th and 28th. Cane grinding and potato digging in progress.—*J. B. Marbury.*

Idaho.—This was the driest and warmest November on record. Late fall plowing was retarded by dry weather. Winter wheat was slow in starting in localities, but was generally thrifty. Fruit trees were in excellent condition. Range grass was short in some localities. Stock was in fair to good condition.—*Edward L. Wells.*

Illinois.—A drought extending through October prevailed at the end of the month. The weather conditions were unfavorable for grasses and fall-sown wheat, but quite favorable for husking and garnering corn. Wheat maintained a good condition, but needed rain. Pastures were short in most sections and entirely bare in some. The greater portion of the corn crop had been husked and cribbed. Apples were keeping well in the northern counties, but much complaint of rotting was made elsewhere.—*Wm. G. Burns.*

Indiana.—The absolute range of temperature was 48°. Wheat suffered from freezing more than it would have had the ground been moist. November, 1904, was the driest on record in Indiana. The average precipitation was 0.36 inch, and the greatest amount at any station was 1.00 inch. Wheat and fall sown grasses in the central and southern sections suffered from drought. Good progress was made in cribbing corn.—*W. T. Blythe.*

Iowa.—The month was unusually warm and was the driest November on record. Ideal conditions prevailed for husking corn, which was mostly harvested without damage from heating. Pastures were excellent, and much fall plowing was done. Fall wheat and rye suffered some harm from drought. The total yield of crops was very satisfactory. The output of corn was about 60,000,000 bushels above the average of fifteen years.—*John R. Sage.*

Kansas.—Wheat generally was in good condition and most of it growing. The early sown wheat was all good, but the late sown was being injured in some counties by drought. Corn had generally been cribbed, except in the northwestern counties, where it was being gathered. Stock continued in good condition, but in the southern counties stock water became scarce.—*T. B. Jennings.*

Kentucky.—The drought that prevailed during October continued throughout November. It was general over the State, except in a few