

On the 13th, 14th, and 15th high easterly winds of a local character occurred on the Strait of Juan de Fuca, for which timely warnings were issued during the afternoon of the 12th. Warnings were also issued on other dates, and they were generally verified, although the justifying velocities were not greatly exceeded.—*Edward A. Beals, District Forecaster.*

SOUTH PACIFIC FORECAST DISTRICT.

The month as a whole was one of good rainfall and moderate temperatures. There were but few severe storms and no serious frosts. From an agricultural standpoint the month was all that could be desired, although in portions of the Sacramento Valley heavy rains resulted in broken levees and the overflowing of much grain land.

During the first decade the depressions apparent on the north Pacific coast moved northeastward, and this as a rule means pleasant weather in California. On January 9 a disturbance moved in over southern California. This was anticipated in the forecasts. This disturbance followed an easterly course and played an important part in connection with the great high of January 12. A depression of some depth appeared on the Washington coast on January 13 and marked a distinct change in pressure distribution. Somewhat similar types followed during the remainder of the month.—*Alexander G. McAdie, Professor and District Forecaster.*

RIVERS AND FLOODS.

Owing to the continued cold weather of January there was no material change in the ice situation, except a gradual increase in the thickness of the ice and an extension of its southern limit into middle and northern Virginia and the upper Tennessee watershed. At the end of the month there were 30 inches of ice at Moorhead, Minn., on the Red River of the North; 22 inches at St. Paul and 11 inches at St. Louis on the Mississippi River; and 24, 14, and 10 inches, respectively, at Bismarck, N. Dak., Omaha, Nebr., and Kansas City, Mo., on the Missouri River; there were also 3 inches of ice on the upper French Broad River at Asheville, N. C., and the river

was frozen over at Dandridge, Tenn., for the first time in five years. There was a heavy gorge in the Mississippi River back of Cairo, Ill., and heavy ice from the lower Ohio was passing Memphis, Tenn.

There were no floods of any considerable magnitude east of the Rocky Mountains, although the heavy rains of the 11th and 12th in the South caused a decided rise in the rivers of Alabama. Warnings that were issued at the proper time were remarkably accurate, and were the means of saving a large amount of property, especially lumber. While the stages reached did not exceed the danger line except in the Tombigbee basin, yet the long duration of the low-water season made the warnings of unusual benefit and importance.

The warm rains from the 20th to the 22d in northern California extended well up into the snow regions of the Sacramento watershed, and as a result the accumulated snow of the winter was melted and carried down into the Sacramento River. Warnings of the flood were issued on the 22d, and the people in the threatened districts in Glenn and Colusa counties made all preparations possible. In Colusa County, however, weak levees were broken, while the waters washed over others, destroying 25,000 acres of growing grain, practically all of this year's crop. At Red Bluff the highest stage reached was 24.5 feet, 1.5 feet above the danger line, while at Colusa it was 28.3 feet, 3.3 feet above the danger line, 0.2 of a foot above any previous record.

The Columbia River was unusually low, and steamboat traffic was absolutely suspended above the mouth of the Wenatchee River.

The highest and lowest water, mean stage, and monthly range at 268 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.—*H. C. Frankenfield, 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 January 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.—Cold, wet, and unfavorable for farm work. Excessive rains of 11th and 12th washed lands badly in many localities and caused rivers to overflow lowlands. Very little more wheat and oats were sown; the fall sown was damaged by severe freeze during middle of last decade, when temperature was as low as 17° to the Gulf coast. Fruit trees and strawberry plants continued in good condition. Very little truck land was prepared.—*F. P. Chaffee.*

Arizona.—The month was warm and wet. Snowfall in mountains greater than for years, assuring abundant water supply. Range feed plentiful and cattle in splendid condition. Winter wheat well advanced, though retarded in growth by snow covering in northern counties. Plowing for spring wheat and barley extensive in south-central counties, and some seeding done. Excessive rainfall interfered with mining and caused some damage to railways and dams. Oranges and lemons marketed. Large yields of garden truck in southern counties.—*L. N. Jesunofsky.*

Arkansas.—The temperature was considerably below normal, while the precipitation was slightly in excess. There was more than the usual amount of snowfall. Very little progress was made in farm work. Small grain did fairly well, but the acreage was small. Stock was healthy, but in poor condition, except where fed. Fruit sustained no material injury from low temperatures.—*Edward B. Richards.*

California.—The temperature was considerably above normal most of the month, but severe frosts occurred in some sections, with very little injury to crops. The rainfall was abundant in all sections and thoroughly saturated the soil. There was some damage to grain by the overflow of rivers in portions of the Sacramento Valley. On the whole, crop conditions were better than at last report, and far better than at this time last year.—*Alexander G. McAdie.*

Colorado.—Live stock remained in fair condition, notwithstanding the cold spells, except over areas in the western valleys, where the ranges were poor. Stock water was ample. Snowfall was about normal, except in the northwestern part of the State, where a deficiency was reported. On January 31 there was about one-third more snow than a year ago at high elevations on the upper drainage areas of the Grand and Gunnison, and double the amount of a year ago on the watershed of the Arkansas and South Platte, while for the Rio Grande there was a marked excess.—*F. H. Brandenburg.*

Florida.—With one exception, in 1893, the month was the coldest January since the Climate and Crop Service was established, and, except in 1886, it was the coldest January in Jacksonville since the establishment of a weather station in that city. In many sections the previous minimum temperatures were reached. The greatest damage befell vegetables. The tenderer kinds, such as beans and tomatoes, were killed where not protected; the hardier kinds, such as onions, cabbages, celery, English peas, turnips, and cauliflower, were damaged about one-half. Considerable unprotected fruit was frosted. Some young trees will die, but, as a whole, orange groves suffered only the loss of foliage. Pineapples on the mainland were severely damaged; those on near-by islands escaped serious consequences. The month was deficient in moisture.—*A. J. Mitchell.*

Georgia.—Month noted for sudden and decided changes in temperature; first few days springlike, rest of time temperature below normal; severe cold wave 25th and 26th, temperature near zero in northern section. Rainfall somewhat below normal, smallest average in the central section; light snowfall in northern half 29th and 30th. Cold weather prevented farm work, except in southern section, and injured grains, some late oats killed; outlook still good; seeding spring oats progressing. Fruit prospects unimpaired; trees in good condition.—*J. B. Marbury.*

Idaho.—The month was warmer than any previous January on record, except that of 1900, and there was a marked deficiency in precipitation. The snowfall in the mountains was unusually light and shortage of water was feared. Winter grain was in good condition. Fruit trees did well, except that some buds were swelling prematurely. Hay was abundant and stock was in good condition.—*Edward L. Wells.*