

SUNSHINE.

The following table gives the hours of sunshine and percentage of possible:

Stations.	Hours.	Per cent of possible.	Stations.	Hours.	Per cent of possible.
Eureka.....	81	27	Sacramento.....	150	50
Fresno.....	240	73	San Diego.....	201	64
Los Angeles.....	203	65	San Francisco.....	127	42
Mount Tamalpais.....	132	43	San Jose.....	204	67
Red Bluff.....	149	50	San Luis Obispo.....	165	53

EARTHQUAKES.

Earthquakes were recorded during November as follows:

Alameda.—November 15, 27.

Santa Clara.—The seismographs recorded disturbance No. 17, on November 5, beginning about 9:18:40 and ending 9:25:24 a. m.; No. 18, on November 6, beginning 12:34:06 and ending 1 p. m.; No. 19, November 8, beginning 10:36:10 a. m. and ending 10:41:30; No. 20, on November 25, beginning 9:04:24 p. m., ending 10:02 p. m.

It may be of interest to note that three well-equipped seismological observatories are now established in this district—namely, Santa Clara, the Lick Observatory, and the University of California at Berkeley. The instruments used are the Wiechert 80-kilogram astatic horizontal and vertical and the Bosch-Omori with recent improvements.

NOTES ON THE RIVERS OF THE SACRAMENTO AND SAN JOAQUIN WATERSHEDS FOR NOVEMBER, 1910.

By N. R. TAYLOR, Local Forecaster.

Sacramento watershed.—Owing to the shortage of rainfall, which was marked in the lower Sacramento Valley and the foothills thereof, low stages prevailed in all streams throughout this watershed, and the general average was only slightly above that of the preceding month. At most points in the Sacramento River and throughout the drainage basins of the American and Feather-Yuba territory the water was the lowest of any November of which there is a record.

San Joaquin watershed.—Showers were fairly well distributed over this watershed from the 8th to 28th, inclusive, and relatively heavy rains fell generally on the 25th, but there was little deviation from the prevailing low stages of water in any of the streams.

PEACHES AND CLIMATE.

By Prof. W. T. CLARKE, University of California.

This is a portion of a paper on choosing a proper location for peach orchards, and is published by the courtesy of the editor of the California Fruit Grower.

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The next item we wish to call attention to as of extreme importance in the matter of choice of location of the peach orchard is the climatic conditions prevalent where it is intended to make the plantings. In our survey of regions in California where peach orchards are successfully grown we have noted the fact that the Sierra foothills to the floor of the main valleys and from the smaller interior valleys to valleys opening upon the ocean, from the north to the south, these plantings are found.

In a geographical distribution so great as this, involving as it does very considerable differences in altitude, in ocean exposure, and in other modifying influences, it will be readily seen that the general climatic conditions will hardly be identical in all of the sections studied. In the orchard regions of the Sierra foothills we find that the peach plantings are in what may be termed a thermal belt. This means that great extremes, especially of cold, are not found prevalent in the section. Frosts are rare and indeed practically unknown at the critical period of the trees' development in the spring, the time of blossoming. Even in those Sierra sections where peaches are grown and where frosts do occur the orchards are placed on sloping ground on side hills, and the cold air drains away and thus damage from

this cause is avoided. We will then emphasize this point of fairly mild conditions prevailing at blossoming time where successful work with the peach is done in this region.

Again, in the smaller valleys opening into the great Sacramento Valley we find the same fairly mild conditions to be the rule where the orchards are continuously successful. The summer temperatures in both the regions range from high to very high, while the spring temperatures are not excessively low. The same conditions, with perhaps here and there slight modifications, hold for those sections of the main valley where we have found the peach to be a good and paying crop. Of course in the main valley we may expect to and do find sharper changes than in the regions previously noted. This is due to the fact that the surroundings offer less in the way of protection than in these other regions. Nevertheless the rule of fairly mild conditions at the period of blossoming holds here as a general rule, as does that other rule of quite high and well-sustained summer temperatures.

Follow southward into the San Joaquin Valley peach sections and we find, as far as climatic conditions are concerned, that this same set of rules holds with a fair degree of regularity. The most constant variation from the regions we have before studied is perhaps in the matter of summer temperatures. In this last noted section we may perhaps find an average higher summer temperature in the San Joaquin Valley peach sections than in the more northern sections. Incidentally we may look upon this as an advantage, more especially if we are growing peaches for drying purposes. The point we wish to emphasize now, however, is this matter of the absence of killing frosts at the period of bloom and the general high temperatures through the summer.

Going across the range of mountains into the more southerly peach sections of the State, we find the mild spring conditions and the high to very high summer conditions of temperature repeated; and where these conditions do not prevail we can be fairly sure that peach growing is, comparatively speaking, an unremunerative business.

Again, in those valleys along the Pacific coast line where any notable degree of success in peach growing has been attained, we find that the observed rule of mild spring conditions holds with a very fair degree of regularity. The summer temperatures in these valleys may not be as high on the average as in the regions before studied, yet they are fairly high. We have also noted previously that, owing to the topography of these valleys, the sometimes harsh and moisture-laden sea breezes are deflected and do not exert any deleterious influence upon the orchards. Where this is not the case and the trees grow unprotected from the ocean breezes the growing of peaches is by no means the success that it undoubtedly is where nature is disposed to be more kindly in her actions. We thus see that in spite of the difficulties in altitude, in exposure, in northern or southern location, the peach-growing sections of California exhibit in their climatic conditions certain quite marked similarities.

The intending planter should, then, in making his decision as to whether or not he will plant a peach orchard see to it that he knows well just what the climatic conditions are in the region where he intends to do business. It is decidedly important, too, that his acquaintance is complete, covering not alone a single year in its entirety, but extending over a term of years. He can not afford to determine from a single year's record what the general conditions may be expected to be. This, of course, does not necessarily mean that one should live for a term of years in a region gathering data to determine whether or not he shall plant a peach orchard. In most parts of the State rather full and complete weather records have been kept for years past. These records are available and can be used by anyone who cares to look them up. Indeed, it is the experience of this writer that many of the reported failures in orchard work here in California can be traced to causes that might easily have been avoided had the planter only understood that sources of information in regard to previously existing climatic conditions are available and, understanding this, had intelligently used this information. The climatic conditions which the orchard will have to meet are prime factors in the problem, and if these factors are neglected the results may be disastrous.

A PECULIAR SQUALL.

By A. G. MCADIE.

On November 21, 1910, at 4:45 a. m., there was a marked disturbance in atmospheric pressure at San Francisco. The morning was comparatively quiet with light winds; suddenly and without any of the usual preliminary signs of air movement, the wind rose, and gusts, varying in velocity it is estimated from 20 to 30 miles, occurred. The barometer fell rapidly and then rose rapidly. From 4:52 a. m. to 5:12 a. m. 7 miles of wind were recorded. At Oakland, about 7 miles due east, the wind movement was 6 miles, from 4:57 to 5:15 a. m.

The character of the disturbance was so unusual that it attracted general attention. Prof. Charles Burckhalter, of