

PACIFIC COAST TRIANGULATION.

Fifteen Geodetic Stations for Topographic Work Located In Baker County.

During the year 1902 triangulation parties of the United States Geological Survey were at work in several localities on the Pacific Coast.

In eastern Oregon the work was under charge of Mr. C. F. Uruhart, and fifteen geodetic stations for the control of topographic work were located on three thirty minute quadrangles east and north of the Baker City quadrangle, which was mapped several years ago. All these stations were located on mountain peaks, and were marked by bronze tablets or copper bolts set in the solid rock, the center of the tablet or bolt marking the exact position of the station. An eight inch theodolite reading by means of two microscopes to seconds of arc, was used in observing the angles between these stations. Usually the instrument could be set exactly over the center of the station mark. When this was not the case the observations were reduced to the mark.

The larger part of the area controlled is a mountainous region with many sharp peaks, though in the southwestern portion, east of Baker City the country is an open prairie, and the famous Grande Ronde Valley, one of the early settled portions of Oregon, is chiefly in the northwest quadrangle.

The mountainous region is fairly well covered with pine and spruce forest except where it has been destroyed by fire. The northeastern part of the area is the summer pasture ground of numerous flocks of sheep, as many as 200,000 having been grazed there in a single season. Powder, Grande Ronde, and Wallowa rivers and their tributaries are the principal streams. Irrigation is necessary over most of the area, though good crops are raised in Grande Ronde Valley without it. Gold mining is carried on to some extent about the headwaters of the Wallowa River.

In eastern Washington triangulation was extended southward to the Oregon State line from the astronomical station and base line established at Spokane in 1902. This work was under charge of Mr. G. T. Hawkins and was done by the same methods that were used by Mr. Uruhart in Oregon. Eighteen geodetic stations, controlling three thirty minute quadrangles, were established. As the area was a comparatively level, open country, iron posts with brass tops, set four feet in the ground, were used to mark the stations.

The whole region controlled is a fine, well settled, agricultural region from 2,500 to 3,000 feet above sea level. The soil is disintegrated basalt, and produces the famous wheat of Washington. The summers are extremely dry, but the winter rains are copious, and no irrigation is necessary. Steptoe Butte, an isolated mass of lava rising with almost precipitous sides 800 feet above the valley, is the most prominent topographic feature in the region, and was formerly the great landmark for trappers and explorers.

In California, triangulation was carried on in the Fresno County to an extent sufficient to control the area

known as the Coalinga quadrangle, the work being under charge of Mr. A. H. Sylvester. The Coast and Geodetic Survey stations Castle Mount and Hepsidam, on the summit of the Coast Range, were used as the initial points in this work, which was carried on by the methods employed in Washington and Oregon.

The Coalinga quadrangle is of especial interest as containing within its limits the Coalinga oil fields, one of the oldest oil districts in California, and one in which oil appears to occur in belts rather than in pools, as is supposed to be the case in the Kern districts at the lower end of the San Joaquin Valley. Coal was formerly mined on the west side of the area, but the vein is not now worked.

The most important topographic feature of the country controlled by the triangulation is the broad, level valley, surrounded by low hills, which occupies the greater portion of the quadrangle. It is in this rim of low hills that the oil wells and coal are found. Irrigation is necessary for the successful cultivation of the soil in this quadrangle, but the available water for this purpose must be derived from the intermittent streams coming down from the east side of the Coast Range, and the supply is very limited in quantity.

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