

of counties extending from Fresno on the south to Shasta on the north, and following the line of the foot-hills on the western slopes of the Sierras. New districts are being opened and worked in the northern and southern portions of the State. The mines of Kern County, of which the town of Havilah is the county seat, have been attracting considerable attention, under the name of the Clear Creek mining district. This stream is a tributary to Kern river—coming in from the south. The mines of Clear Creek proper are included in a strip of country one mile wide and about four miles long. They are situated on the eastern side of the slope lying west of Havilah, and within a distance of three miles of the town. The country rock is chiefly granite, which near the surface has been much disintegrated by the action of the elements, and hence permits an easy extraction and crushing until the permanent water level is reached; at which point the rock becomes harder and more difficult to manipulate. Some 500 to 800 locations have been made; but not more than a dozen claims are reported as being actively and remuneratively at work. There are several other districts in the county, owners in which feel sanguine of good results so soon as the quickening hand of capital shall be stretched forth to assist in their exploitation.

Hence, northwardly on the great quartz belt, the first important mining region is in the county of Mariposa. A quartz mill was constructed in this county as early as 1850, and the year following the first mill was built at Grass Valley, Nevada County. The southern mines, notwithstanding that they were started earlier than the northern mines, have in the last few years been steadily outstripped by the latter. Recent developments in the Josephine mine, on the Mariposa estate, and the activity displayed round the various mining centers of Tuolumne County, give promise of a brighter future for the lower half of the mining field. The great mother vein of California commences in Mariposa, follows more or less nearly the general trend of the Sierras, and finally passes out of the State at its northern limit. It is distinctly traceable, by its outcrop, for a distance of nearly 100 miles from Mariposa into El Dorado County; being thus the longest quartz vein of which we have any record. Northwardly, in the counties of Nevada, Sierra and Plumas, the quartz belt appears to approach a more nearly north and south direction. The course of the quartz vein is by no means to be followed over every mile of the spaces between its points of outcrop. Nor are the productive mines confined to the line of the mother vein itself; but the parallel formations often carry valuable lodes. The country rock is mostly slate, to whose dip and direction the quartz veins are generally conformable; although they sometimes run at right angles to the stratification. Some of the best mines have been found in greenstone, granite and metamorphic sandstone, and even in limestone; so that the country rock cannot be taken as conclusive evidence either for or against the probability of persistence in depth and richness. In size the lodes vary from a few inches to forty feet and upwards, with a likewise varying yield; although, as a rule, the percentage of gold, relatively to the mass, is greater in the small than in the large veins. The distribution of the pay portion is by no means uniform; nor is the entire vein mass worthy, under present conditions, of being passed through the mill. The best mines of Europe seldom extract, even for the purposes of concentration, more than one-third the matter contained between their walls; and the valuable ore here, as elsewhere, is distributed in shoots, chimneys, kidneys, or cuneiform masses, often having a very marked and persistent dip and direction: and it is upon the extent and richness of these zones of ore in the vein that the value of a quartz mine chiefly depends. An acquaintance with the true character of ore bearing deposits can be of no disadvantage to, and will advance rather than retard, legitimate mining investments. Nor are the best mines confined to a northerly and southerly direction; indeed, some of the best mines in the township of Grass Valley, which locality is at present the main focus of profitable vein mining, have an east and west course. It will be impossible in the limits of a single paper to treat at length of all the localities of mining; the centers only can be touched upon, and these, commencing on the south, may be enumerated as follows: The