

Northward from Walker's Pass, in latitude $35^{\circ} 30'$, the great mountain rises in its sublime majesty and extends in one grand serrated column of five hundred miles in length, and studded with peaks the highest in the United States. Here is the great gold field of the world. The western flank of this noble range is seamed with veins of gold, and its rivo beds and ancient gravel deposits are stored with the precious metal. In this region have been the great mining enterprises, and from it has been taken the vast treasure that has flooded the world. Twenty-seven counties upon this belt claim gold mining chiefly or as a part of their resources. Centrally, at Coloma, in El Dorado County, gold was first discovered, and through this central portion the belt of placers appears widest and richest. In Mariposa, Amador, and Nevada Counties have been developed the most extensive quartz veins, and in Placer, Nevada, and Yuba, the most complete system of hydraulic mining.

In Tuolumne, Calaveras, and Amador Counties exists a large vein, or a series perhaps, which is claimed to be continuous, and is called the "Mother-lode," and the very rich mines of Sutter Creek, in Amador, Angels, in Calaveras, and at Quartz Mountain, in Tuolumne, are upon the vein. The Princeton, and other mines of the Mariposa estate, in the south, and the mines of Grass Valley, in the north, are also thought to be on the same, but as in the different localities are many parallel veins, and as far from the line of the "Mother-lode," are gold-bearing ledges of great value, the theory of the existence of a continuous great vein, or that the rich mines are all on one ledge, cannot be held as proven. Far in the northwest, in distant Siskiyou, are the great Klamath, and Black Bear mines, on a vein of similar features as the "Mother-lode," indicating by the wide separation a multiplicity of veins rather than a continuous one. High up in the Sierra, and low down in the foot-hills, the gold-bearing veins are found, and their number is countless. Their width varies from a few inches to twenty feet, their course usually north a few degrees west, and dipping to the eastward. The deepest explorations are in the Amador mines, where a depth of 1,300 feet has been reached. At Mariposa 600 feet has been sunk; at Grass Valley, 1,000; and 500 feet at the Black Bear, in Siskiyou County. These explorations are comparatively slight, but are the most extensive in the State. The Amador mine, in Amador County, is at the surface, 900 feet above the level of the sea, consequently its present workings are several hundred feet below the ocean.

Hydraulic washing constitutes a novel and interesting system of mining. The deep gravel deposits having fine particles of gold disseminated through the mass, require rapid removal to extract the precious metal with profit. For this the hydraulic has come into use. Large capital, bold enterprise and good judgement are required, but with these success may be assured. The gravel ridges vary in depth from fifty to five hundred feet, and if containing gold of the value of ten cents per cubic yard, and favorable for washing, are mined profitably. To wash them sluices from four to eight feet in width, and sometimes extending a mile or more in length, are placed, reaching from the lowest bed of the gravel down some adjacent cañon. With an iron pipe from a foot to twenty inches in diameter a column of water under great pressure is led to the base of the gravel, against which it hurls itself like a liquid catapult and the bank melts before it and flows through the sluices where the golden particles settle and remain. Nozzles, distributors, rifles, undercurrents, quicksilver, etc., are required to complete the apparatus. Gratifying success has attended this class of mining in Nevada, Placer, Yuba and Butte counties, and the system is extending in grand proportions. Preparing for the purpose are many grand enterprises, as the Amador Canal Co. in Amador County; the El Dorado Deep Gravel Co., and the Mount Gregory Water and Mining Co., in El Dorado County; the Iowa Hill Canal Co. and the Bear River Tunnel Co., in Placer County, and the North Bloomfield Water and Mining Co., in Nevada County, and many others which promise to restore the mining counties to their former wealth and prosperity. The great flood of gold obtained in the first few years of mining was from the easily worked placers, the river bars and beds, the ravines, gulches, flats and hill-sides, by the simplest processes and by labor unassisted by capital. With the decline in value of the shallow placers, the grandest of enterprises, in the opening of the deep hill deposits, were undertaken and prosecuted with an energy having no parallel in mining history. These were often undertaken in a hap-hazard manner and conducted with great sacrifices, sometimes resulting in an entire failure or loss to the projector, but adding greatly to the aggregate product of gold, giving enormous incomes to successful individuals and general wealth to the country. But the losses resulting from the guess-work system discouraged enterprises of the kind, which, together with the excitements attending other mineral discoveries in the neighboring States and Territories, caused an exodus of miners from the placers of California, and the great decline of the mining interest. Every period of excitement has shown a decrease in the gold product, and although they incite to great enterprise and extend the area of the mineral territory, have caused great loss to the mining interests of the State. This depression can be but temporary, as the gold will not waste by waiting in the deep gravel-beds or the countless veins of quartz which seam the mountains. The lack of any outside excitement is readily shown in the increased receipts of California gold at the Mint and Assay Offices in San Francisco.

The courage with which the laboring miner formerly sought the hidden treasure is in extreme contrast with the timidity exhibited by the capitalists of the country. An air of distrust has constantly been thrown around every mining enterprise in California, until the belief prevailed that the decline in the receipt of bullion, and consequent decline in prosperity, was caused by the actual exhaustion of the mineral deposits.

Never was there a greater error! There are hundreds of square miles of deep auriferous deposits, where but the surface or some small point has been touched, leaving the mass to be explored by the future miner. These great regions seem formed by glacio-aqueous action, the material torn from more elevated regions by ice, ground into sand, clay and boulders, freeing the gold from its original matrix, and quietly depositing all in gently flowing currents or standing bodies of water. The crushing of the rocks and the enormous boulders found beneath, within and above strata of clay and sand, indicate an inconceivable power; the deep deposits of clay, sand and gravel in level beds and horizontal strata are proof of the lengthy period and quiet manner of the deposition; also, that there has been no great disturbance of the deposits during or since they were made, and the character of the rocks and the gold being similar to those found in the higher elevations of the Sierra, point out the direction of the current. The theory of the ancient "Blue River," running from north to south through the Sierra, whose channel was the great "blue lead," can have no foundation when the facts are critically examined. There are many such leads and channels, and of different degrees of altitude throughout the mountains.

These are the great reservoirs of treasure that now invite development. Their mysteries are hidden beneath the accumulations of countless years, and in many instances are locked in the embrace of the basalt and debris of the ancient volcano. Such hills as were of convenient access have been explored, and in some cases mined away by the drift or hydraulic; but by far the greater part still remain but slightly or entirely untouched. To develop these and demonstrate their value is an object worthy the National or State Government's attention. The formation not being fully understood, the unaided efforts of the miners to fathom their depths have been baffled; in some instances by the quantity of water, the great depth, the length of tunnel required, and the misdirection of work. There are also many great ridges branching off from the main chain, entirely covered with volcanic matter, concealing the auriferous drift, if there should be any, but which it is reasonable to suppose contain the golden channel beneath the rugged rock or noble forest that crowns the hills. Such channels were found beneath the basalt of Table Mountain, in Tuolumne County; another in a similar mountain in Butte County; also, in other localities.

These ridges flank the Sierra its whole length, like great ribs from the dorsal column, and constitute