

was struck at 3,080 feet. All the data together indicate an increase of temperature of one degree for 28 feet of depth. This abnormal increase appears confined to the vicinity of the lode. The great Sutro Tunnel, which approaches the east wall at a depth of 1,900 feet, indicates a great increase of temperature in approaching the wall. At the distance of 128 feet, the temperature is 110°; at 1,048 feet, 108°; at 2,052 feet, 96°; at 3,651 feet, 89°; at 5,008 feet, 87°; at 7,175 feet, 85°; at 9,512 feet, 83°; at 10,849 feet 79°. This great increase of temperature can not be attributed to the increase in depth of the tunnel below the earth's surface. The extraordinary temperature, therefore, is a phenomenon of the lode. It appears to rise from some greater depth, and the indications point to ascending water as the probable agent in bringing up the heat from a deeper region. It acts, therefore, like an enormous hot spring. Thirty miles away is the Sierra Nevada range, and from the altitude of perpetual snow, the eastward dipping strata descend into the earth for a great depth. The water which accompanies them reaching the deep portion of the Comstock Lode, their course is in part arrested by the impervious clays. When reached therefore by the mining operations, the relief of pressure causes them to rise from depths much below the bottom of the works.

The waters just mentioned constitute the second powerful obstacle to mining on the lode. In the deeper works, the volume has assumed portentous proportions. The water was originally pumped to the surface through the vertical shafts. Steam-pumps of ever increasing capacity, however, proved successively inadequate to the demand. Hence, the daring enterprise of Adolf Sutro conceived the tunnel which bears his name, and which, through thirteen years of opposition, he fought to successful completion in 1878, at a cost of two million dollars. The outlet of the tunnel is 20,000 feet from the east wall of the lode. From the entrance, a lateral branch is extended north along the lode 4,403 feet (to October, 1880), and another lateral, southward, 4,114 feet. The tunnel is seven feet in height, and eight feet in width in the clear, with