

and maintaining the irrigation works. On the American Continent the ancient inhabitants of Peru were found by their conquerors in the use of the most costly works, constructed for the irrigating of their lands. Prescott says, "canals and aqueducts were seen crossing the low lands in all directions and spreading over the whole country like a vast network, diffusing fertility and beauty around them." The Aztecs of Mexico also made use of similar means to counteract the natural dryness of their atmosphere. When the Mormons first settled in Utah in 1846, that Territory was a waste of barren land and sage brush. In 1868, twenty-two years later, there were ninety-three thousand eight hundred acres under irrigation at an expense of \$250,000, and since then the area has been very much increased, so that we have a case here in which the desert has been made "to blossom as the rose," by the simple art of irrigation. In Colorado extensive canals and other improvements have been constructed at a large cost, and over a million acres thus brought under cultivation. In that State the water is controlled by joint stock companies, and delivered to the farmers at a cost of from a dollar to two dollars per square inch equal to about a dollar per acre, the cost of distribution over the land itself being about one half dollar per acre. A fall of three feet per mile will give a velocity of about three miles per hour, and one square inch having this velocity is considered sufficient for each acre under cultivation. In any country if the cross section of the stream, which may be used to irrigate the land, be determined, the number of inches may be taken as a practical measure of the number of acres, which can be irrigated if all the the water should be used for that purpose. For example, a stream of 100 feet wide and 5 feet deep would water 72,000 acres or 720 farms of 100 acres each. A farmer with 100 acres of land under cultivation secures 100 inches of water at this velocity, and he can with it water his whole crop in ten or twelve days. Wheat usually requires to be watered two or three times during the season, late crops needing it much oftener. In California the system of irrigation is carried on in very much the same way as in British Columbia, each farmer constructing his own ditches which are often rude affairs, but nevertheless they succeed in bringing the water, in some cases, ten miles. There are a few companies which supply water on the same system as in Colorado, while numerous farms, gardens and orchards are irrigated by small ditches and wells. Many complications have arisen in California over this water question, regarding individual and prior rights, and it bids