

DISSEMINATION OF GOLD.

We believe it to be a sound principle, that the working classes generally should have a practical knowledge of all those elements of wealth which constitute the leading resources of the country in which they live. "A little knowledge is a dangerous thing," in every sense of the word; while a liberal share of useful information concerning the general topics of the age in which we live, is ever an ark of safety in whatever situation we may be placed.

There is a remarkable difference between American and European craftsmen. Our mechanics come into the possession of their trades with a fund of information based upon a wide experience and observation. A blacksmith, for example, knows how to build his own forge and prepare his own charcoal. A wagon-maker not unfrequently implies such a man as is able to build the woodwork of a carriage, iron and upholster it. A machinist knows how to fashion his tools as well as he knows how to use them in the execution of a piece of work. Not so, however, with the English operative. Just as a horse knows how to turn a treadmill, so is the European mechanic generally, conversant only with those things which come within the narrow limits of the sole business to which his father apprenticed him.

With these introductory remarks, we will proceed to the subject before us.

Gold is one of the acknowledged resources of the Pacific States and Territories, and, as such, it becomes our people to understand something about its geological history and the most approved methods of extracting the metal from the various earths wherein it is found deposited. Old miners and prospecting experts are, as a rule, averse to the study of elaborate works on mineralogy and metallurgy. They require but few theoretical principles, and will tolerate those only which they can reduce to practice on the spur of the moment when most in need. Hence, we conclude that a newspaper or magazine article, written in an easy and popular style, will be read and treasured up when unwieldy tomes would grow musty upon their shelves.

It may not be generally understood that gold is one of the most universally disseminated of all the metals. Iron,

in fact, is the only exception. It is only a few years ago that the auriferous belts of the earth were supposed, by the leading geologists, to be extremely limited. But few isolated gold-producing regions were known to the ancients. These were doubled in number during the mediæval ages, while they have been more than quadrupled by the explorations of modern times.

The gold regions of the United States, the only ones of which we shall treat in the present article, may be divided into two principal sections—the Appalachian and the Californian. The first named section comprises all those auriferous rocks, alluvia and diluvia, extending from Georgia to the Canadas; gold having been found to a greater or less extent in portions of Georgia, North and South Carolina, Virginia, Maryland, Pennsylvania, Massachusetts, Vermont, New Hampshire and Maine. Gold, in small quantities, has also been discovered in portions of Tennessee, Alabama and Michigan.

The California section comprehends an auriferous system of mountains and hills extending from Lower California to British Columbia, and eastward to the Sierra Nevada and Cascade mountains. Latterly, the precious metal has also been found in New Mexico, Colorado, Arizona, Utah and Idaho. The gold-producing areas of Oregon and Washington are daily widening as adventurers push their way into the heretofore unexplored sections. It is getting to be a matter of common occurrence to find gold indications in all our river-beds and gravelly drifts. Nay, we are persuaded to believe that there are but few of our old pioneers throughout this Pacific Northwest, who would be afraid to wager that they could find the "color" in the bars of the streams that water their farms.

This wonderful dissemination of auriferous particles is yet an unsolved problem among mineralogists. That the crests of metal-bearing ridges were abraded and torn by the convulsions of the glacial and drift periods there is no question. Hence, it is not difficult to conceive how these severed crags and masses of earth were precipitated and washed into the valleys below, by the united action of avalanches, land-slides, and the annual floods of past ages. This is the rendering of one of the most commonly received and plausible theories. The disintegration of mineral rocks and the further attrition of their particles, is a process which still

continues in our own day, though with far less violence and activity than in former times. Let not any of our readers be startled when we tell them that in many instances placer gold is none other than an actual *crop* of annual renewal. This is conclusively shown by the restoration of many of the California river bars, which have become a second and third time impregnated with auriferous particles since they were first worked out in the early days of their discovery.

It is but reasonable to suppose that, by the melting of enormous masses of snow and ice, annual mountain torrents are formed in the Nevada and Cascade ranges, of whose violence we can form no adequate conception. Thus, through the instrumentality of these streams, various mineraliferous ledges are broken down and their mingled debris carried headlong into the canyons below, and thence, by slower and less active processes, their smaller particles are transported by purling brooklets to the table-lands and plains, where they are finally ensconced in the all-pervading alluvial deposits.

It is only about fifteen years ago, or, at the longest, within the last two decades, that geologists have boldly and confidently predicted the finding of gold in certain definite formations. While it is, to a certain extent, true that quartz rock is the natural matrix of gold, it is a conceded principle that where the main geological formation largely comprises *talcose slate*, with here and there *intrusive rocks*, there gold, theoretically and actually, exists. We believe it was Tyson who originally announced this coincidence as a natural law in geology, while a few years later, Dana first made a practical application of the principle on the Pacific coast.

By far the greater amount of gold taken from the earth must needs come from alluvial deposits, and in these drifts the metal is more extensively distributed than in any other localities.

From what has been said, it will thus appear that the so-called "placer diggings" will continue to be the most profitable deposits for solitary miners and small corporations. "Panning" and "rocking" are, perhaps, the most primitive methods of separating the gold from the containing earths, and they require no special outlay. Sluicing needs some little ready capital to inaugurate efficient operations; while the hydraulic process necessitates a large expenditure for apparatus. The reduction of gold-bearing rocks and the extraction of the metal is only accomplished by the most costly machinery coupled with elaborate manipulation.

Finally, and in conclusion, a few "colors" to the pan, found in his own immediate neighborhood, will justify any industrious man, not otherwise employed, in making extended explorations in search of the precious metal.