

## CALIFORNIA GOLD.

About two years ago, the Emperor of France sent out M. Laur, an engineer, to explore California and the gold regions of the Pacific range of mountains; and the war between France and Mexico, it is thought by some, has for its ulterior object the securing of a portion of the gold regions for France. A summary of these explorations has been published in the *Revue des Deux Mondes*. The Sierra Nevada, in Upper California, is described as a mountain with "a cloak of gold." The gold of California is considered by M. Laur to be of more recent formation than the rocks which contain it. Long after the quartz rocks had been formed a great geological commotion took place and portions of the extensive Sierra Nevada were then elevated. The crust of the earth was then opened up, and fused matter came forth seething from the interior of the globe. Streams of sulphur, iron, gold and other metallic substances flowed out of the subterranean furnace, and poured like floods over the face of the country. These oozed into the upper strata of certain rocks, and thus they were impregnated with veins of gold. The precious metal entered and condensed in the fractures of the rocks, caused by the upheaving commotion. Such is the supposed origin of the primary deposits of gold in California. This volcanic phenomena probably took place when the continent of America was covered with seas violently agitated. The surface deposits of the gold were washed out, rocks were also disintegrated, and layers of sand, gravel and clay were spread over the whole country. By this aqueous action much gold separated and arranged itself in layers, thus forming strata called ancient auriferous alluvia.

Another period succeeded this ancient reign of diluvial action. The seas departed, the dry land appeared, and the winds and rains and rivers and streams, acting on the rocks, disintegrated them also, carrying away the sand, and oftentimes leaving the heavier gold behind, concentrated in the main direction of the currents. Hence it has been found in greatest quantities in the ripples of streams and the old beds of rivers. The washing placers, called "wet diggings," are in the ancient alluvia, the gold being there found mixed with the gravel. Formerly, in 1848 and 1849, these yielded immense quantities of gold, but now they are mostly exhausted. The patient Chinese in California can now scarcely realize seventy-five cents per day, for each individual, in such placers. But the gold veins and auriferous rocks remain; and these will be magazines of the precious metals for ages to come. What are called "dry diggings" also yield largely.

## HEAT OF THE EARTH'S INTERIOR VOLCANOES.

It is generally believed by men of science, and others, that the interior of the earth is a mass of molten matter, the heat of which is intense beyond that which can be produced by known artificial modes. Many of the rocks which form the crust of the earth appear to have been once in a fluid condition, and no skill possessed by man can reduce some of them by heat to the state in which they once existed. Dr. Sjiljstrom, a Swedish astronomer, expresses it as his belief that the interior of the earth is occupied by currents of various degrees of heat, which mix with each other and attain a certain degree of temperature in the same manner as substances subjected to all the physical influences of the earth's exterior. In other words, the theory is, that a mass of fluid, possessing different temperatures in different parts of its interior, must be subjected to a process of convection. The result is usually a change of volume in the entire mass of circulating fluid, causing eruptions like those of volcanoes. In Hekla, however—the famous volcanic mountain of Iceland—the heat seems to be local, not proceeding from any great depth in the interior of the earth. A writer in the *London Quarterly*, who has visited it, states that, while vapors were issuing from the black sand on the summit, "in the crater itself, some hundred fathoms below, were gaping ice-holes, and great masses of snow, side by side with sulphureous steam-jets." The poet who used Hekla as an illustration of blowing hot and cold in one breath was true to nature; for, strangely enough, while one part of the

cone is quite cold on the surface, steam is issuing from another part higher up, showing that the heat is local, and dependent upon the fiery character of the under beds. This is proved by the experiment of an Icelander at another place, who discovered that the heat began two feet below the surface. Beneath that depth he came to a violet-colored layer of soil of sulphurous odor, where the heat was greatest. Lower still it was found to be less and less, until at the depth of nearly eleven feet there was no heat at all. The depth of greatest heat at Krisuvili was ascertained to be twelve feet beneath the surface, and below this the heat diminished. It is remarkable that, during the eruptions of Hekla, vast floods of water and ice pour down its sides with solid rocks and fiery sands. The waters from the volcano flow over vast tracts of low lands, like the freshets of a great river. Where this water comes from is a mystery that has not yet been fully solved.

## GRIND THE TOOLS.

Keep the tools sharp or they will not cut. A dull tool wastes time, and he who permits it to work when in that condition, is a dull fellow. The best turners are those who have the sharpest tools; the most successful surgeons use the keenest knives, and the most enterprising and energetic men in civil life are those whose wits have been early ground sharp, and whose perceptive faculties have been whetted by sore experience in early life. A dull tool is a useless implement, and a thick-headed, unobservant person is the only one who should be found wielding it. The obtuse edge neither cleaves nor separates, but bruises and works off by attrition particles of the substance on which it operates. Grind up the tools, and sharpen the wit as well; if one is keen, the other will in all probability be in a similar state, from the force of sympathy alone. A boy with a dull pocket-knife is one who swings on the gate and who dodges his duty; he is one who in after-life will be a dunce and a cumberer of the ground; he will add nothing to the world of science, neither will he take from it; his existence is merely animal, his thoughts and ideas, if he has any, wholly conventional. His comrade, with a keen blade, makes models of machinery, of boats or steamers, and in time he becomes a George Steers, or so develops his mother-wit as to be a decided acquisition to the community. Let us have all the tools in good condition, sharp, trenchant, and always ready for service; then, and then only will the result produced be equal to the time and labor expended.

## MISCELLANEOUS SUMMARY.

**FIRE-ARMS.**—Colt's Patent Fire-arms Manufacturing Company, at Hartford, Conn.—now, since its enlargement, the most extensive armory in the world—is in very full operation. There are five buildings, each 500 feet long, three of them three stories high. They would make a continuous building 2,500 feet in length by 64 feet wide. The motive-power consists in one engine of 400 horse-power, two of 350 horse-power each, and one of 75 horse-power; all but one built by the celebrated firm of Woodruff & Beach. There are nearly 1,600 hands constantly employed on arms for the Government. At Sharp's Rifle Manufactory about 500 hands are employed. The Government take all they make. These works have been considerably enlarged and improved recently, and still further improvement is contemplated.

**EMBALMED BODIES.**—Some time since, in clearing out the ruins of an old chapel in Warwickshire, England, several leaden coffins were exhumed containing embalmed bodies buried more than two hundred years ago. The coffin which contained the body of Lady Audry Leigh (buried in 1640) was opened and the body found perfectly embalmed and in entire preservation, her flesh quite plump, as if she were alive, her face very beautiful, her hands exceedingly small and not wasted. She was dressed in fine linen, trimmed all over with old point lace, and two rows of lace laid flatly across her forehead. She looked exactly as if she were lying asleep, and seemed not more than sixteen or seventeen years old; her beauty was very great; even her eyelashes and eyebrows were quite perfect, and her eyes were closed; no part of her face was at all fallen in.

**PYROLIGNEOUS acid and sulphate of zinc**, twelve drachms of each to seven pounds of water, form a fine preservative fluid. Human bodies injected with this mixture will keep during the most intense heat of summer. Glycerine has been justly recommended in various affections of the skin; but it is especially valuable in that troublesome affection in which the hairs become dry and fall off. During the abundant epidemic exfoliation, undiluted glycerine may be applied with excellent effect. A mixture of equal parts of oil of almonds and glycerine, and one half ounce of zinc, has proved useful in some skin affections.

**SUGAR.**—Sugar in plants is analogous to fat in animals; as if it was the end a plant had in view by its vitality to produce and lay up in store within itself—sugar; hence, the subservience of plants to man in this case is self-evident. Nearly every flower-cup contains a minute portion of sugar, which, being gathered by bees, we are familiar with as "honey," the peculiar flavor of which depends upon the blossoms it is taken from. Grapes are so full of sugar that, when dried, white crystals of it are found within the fruit, which may be seen when raisins are cut open.

**A NEW TOY GUN.**—A very unique toy gun for children has been invented by Mr. I. S. Clough, of 290 Pearl street, this city, and it will doubtless become quite popular. It is a very mysterious and deadly-looking weapon, but is as harmless to the user as the veriest wooden gun in existence. We are prohibited from publishing any details of the construction of this gun as it might be of advantage to our enemies. (See advertisement in another column.)

**A HUMMING BIRD'S NEST.**—A California paper thus describes a humming bird's nest, in the garden of Wm. Hawley in Marysville:—"The nest contained two of their young. It is about the size of a black walnut, of a very fine texture, almost white, much resembling woolen cloth, and firmly bound to the twig of a peach tree, within three feet of the ground. The young birds are not much larger than grains of coffee, and present a very singular appearance."

**THE NEW IRON-CLAD FLEET.**—The Navy Department finds some trouble in contracting for the new iron-clads. One has been contracted for at Wilmington, Del., and one in Philadelphia, Pa., by Merrick, for \$380,000, but the new York builders refuse to touch one for less than \$500,000. The Department has applied to Captain Ericsson to try and make the plans less costly.

**MELON-GROUND.**—Look well to the linings of beds and keep up a good heat; as they advance keep the vines both of melons and cucumbers evenly trained over the surface. Add fresh mold gradually as required; remember that melons like a firm—we might almost say a hard—bed to grow in; therefore, the soil in which they grow should be quite firm. Take care in planting out or earthing-up not to cover the plants deeply at the collar or bury the seed leaves.

**A BLIND WORKMAN.**—A young man in Greenock, Scotland, of the name of Kid, who was blind from his infancy, finished the model of a sixty-four gun ship, and every necessary material and apparel of a ship of that rate, without any assistance whatever or other instrument than a small knife and hammer.

## Discount and Premium.

An erroneous opinion is entertained by many persons respecting the real amount of depreciation in paper currency as compared with gold. Thus it is believed that, when a gold dollar commands a premium of fifty cents in paper currency, the depreciation, of the latter amounts to fifty per cent. In such a case the depreciation is  $33\frac{1}{3}$  per cent. Gold quoted at fifty per cent. premium means that it requires 150 paper dollars to purchase 100 gold dollars, or that 100 paper dollars are worth  $66\frac{2}{3}$  gold dollars. Thus  $\$150 : \$100 :: \$100 : \$66\frac{2}{3}$ —a depreciation of  $33\frac{1}{3}$  per cent. Supposing one yard of woolen cloth can be purchased for one dollar in gold, and the gold coin commands two dollars in paper, the depreciation of the paper currency is fifty per cent., as half a yard of the cloth can be bought for one dollar in paper. This case practically illustrates the operation of premium and discount between gold and paper.