THE JEFFERSONIAN.

Devoted to Politics, Literature, Agriculture, Science, Morality, and General Intelligence.

VOL. 27. STROUDSBURG, MONROE COUNTY, PA., NOVEMBER 26, 1868. NO. 35.

Published by Theodore Schoch.

TERMS—Two dollars a year in advance—and if not paid before the end of the year, two dollars and fifty cts. will be charged.

No paper discontinued until all arrearages are paid, except at the option of the Editor.

☞Advertisements of one square of (eight lines) or less, one or three insertions $1 50. Each additional insertion, 50 cents. Longer ones in proportion.

What is Life.

BY C. STEIN.

I.

A little crib beside the bed,
A little face above the spread,
A little frock behind the door,
A little shoe upon the floor.

II.

A little lad with dark brown hair,
A little blue-eyed face and fair;
A little lane that leads to school,
A little pencil, slate and rule.

III.

A little blithesome, winsome maid,
A little hand within his laid;
A little cottage, acres four,
A little old-time household store.

IV.

A little family gathering round;
A little turf-heaped, tear-dewed mound;
A little added to his soil;
A little rest from harvest toil.

V.

A little knot of silver hair;
A little stool and easy chair r
A little night of Earth-lit gloom;
A little cortege to the tomb.

Butter in Sacks.

A correspondent of the Rockford *Register*, writing from Olympia, W. T., gives the method used on the Pacific coast for preserving butter:

"I think the dairymen here have an art in the management of butter that might be turned to good account at the East, but which I never saw practised till I came to this coast. I allude to the manner of putting up butter for market. Perhaps necessity was the mother of this invention, but that makes the invention none the less valuable. Here such a thing as a butter firkin or a stone jar to pack butter in, is unknown but all butter is packed in muslin sacks, made in such form, that the package when complete, is a cylinder three or four inches in diameter, and from half a foot to a foot in length.—The butter goes from the churn, as soon as worked over, into the cylindrical bags, made of fine bleached muslin. The packages are then put into large casks containg strong brine with a slight admixture of salpetre, and by means of weights kept always below the surface. The cloth integument always protects the butter from any impurities that chance to came in contact with the package, and being always buried in brine, that protects it from the action of the air; and it has been ascertained by trial that butter put up in this way will keep sweet longer than in any other way. Besides, it is found easier and cheaper for the manufacturer than to pack either in firkins or jars.—And for the retailer, there is no telling the advantage on the score of safety and and convenience. These rolls of butter can lie upon his counter as safe from injury, from dust or other contact, as bars of lead—can be rolled up for his customer in a sheet of paper with as much propriety as a bundle of matches. If the consumer, when he gets home, discovers specks of dust upon the outside of the sack, he can throw it into a pail of pure cold water and take it out out clean and white.—As he uses the butter from day to day, with a sharp knife he cuts it off from the end of the roll in slices of thickness suit to his wants, peels off the cloth from the end of the slice, leaving it in tidy form to place upon the table. This improved manner of packing butter first caught my eye in the market at San Francisco, where I saw cords of it piled up like pigs of lead. The simplicity and great value of improvement so impressed me that I wondered the Yankees had not long ago found it out"

A Living Headless Child.

The Deposit (N. Y.) *Courier* is responsible for the following marvellous story: In the vicinity of Spoon river, in Illinois, is a child that was born and has lived five years with out a head. Mrs———, the mother, is the widow of a soldier, formerly living in Marshall county, who enlisted in the 65th or Scotch Regiment, and was killed at the battle of Devington, Mo.—She was standing beside her husband during the engagement, when a cannon ball carried his head completely away, his body falling into her arms, and covering her with blood. The shock affected her greatly. When her child was born there was not the semblance of a head about it. The limbs are perfectly developed, the arms long, and the shoulders, where the head and neck should be, smoothly rounded off. But the most surprising thing of all is that the face is situated in the breast. Of course, there being no neck, the power of turning its head is wanting, except as the whole body is moved; but this difficulty is overcome by the singular faculty it possesses of turning its eyes in their sockets, enabling it to see quite as well on either side as those more perfectly formed. The upper portion of its body is white as purest Caucasian, and from the waist down is blood red. This strange creature, now an active boy of five years old, as if to compensate for his deformity, possesses the most clear and bird like tones ever listeded to, singing with singular correctness everything it may hear, and its voice at this early age accomplishes two octaves easily.

William E. Boyden, of Sandwich, has raised this season four hundred bushels of turnips on three-quarters of an acre of land. Three of them weighed each twenty pounds.

MONTANA.

THE MINING REGIONS—PROCESS OF MINING—HOW GOLD IS OBTAINED.

UNION CITY, Montana Territory.

How is gold produced? This question could be answered is general terms by almost any intelligent person, but there are few, without personal observation in mining regions, who have any just conception of the intricate details necessary to the production of the precious metals. All know that millions are annually developed from the various gulches and mines in the Rocky Mountain Territories and States, and the difference between placers and quartz mines is popularly understood, but of the skill, patience, and labor *essential* to produce gold, even by the simplest process, the public generally have no sort of correct appreciation.

Gulch or placer mining is the simplest method of taking gold from the earth—Gulches are simply the ravines into which the gold croppings of rich leads in the mountains cliffs are washed. Surface or blossom quartz is usually found on any hill in which valuable mines slumber, and the elements gradually decompose it until it separates the particles of gold from the flint or iron that holds it captive, and its specific gravity forces it not only down into the gulch, but down through the the earth to the very bottom or bed rock of the ravine. This gold, coming, as it does from decomposed rock, is entirely "free gold," and has no mixture of the base metals, so that no peculiar scientific attainments are requisite to master it. Its existence in a gulch is easily ascertained by the simplest implements. A spade, pick, and pan are all that the prospector requires. His pan is made of sheet iron, and holds about a peck. The centre of the course of the washing is found, the pan half filled with the earth, and it is washed out by dipping and whirling the pan in water the loose earth escapes with the water, while the gold, iron, and pebbles remain. All the science necessary to save gulch-gold, is the appreciation of the fact that gold is the heaviest of all substances on the earth and will always attain the lowest point it can find. As the earth is whirled around in the water, the gold gradually settles to the bottom of the pan, and when there is no more earth to wash out, the pebbles are picked out. A little pocket-magnet, stirred around in the pan, will take out all the iron by adhesion, and leave the pure gold or "dust." This dust varies in value according to its fineness, and its marketable price is from $12 to $19 per ounce (Troy) in gold coin. The lowest standard of "dust" has some silver mixed with it, but different gulches will produce gold ranging in degrees of fineness as much as 20 per cent. Any expert dealer in gold in established mining regions can at a glance usually tell the gulch from which any lot of dust has been taken.—In the early settlement of all mining countries gold is the only legal tender in all business transactions, unless there is a special contract for currency. Every man carries a buckskin purse, and when he buys anything, from a plug of tobacco to a gold mine, the dust is weighed out in payment at its standard value per ounce.

The various methods for separating the gold from the earth of the gulches are all exceedingly simple while the first placer miners are working it. They usually make their own "district laws," the district embracing any particular camp or gulch. They meet in mass council and adopt their code, then land laws, then water laws, and all needful regulations for their enforcement. The local or district laws have always been respected both by Territorial and Congressional enactments—so that no better primary title can be procured than a clear title under the district laws. When disputes arise they try titles to claims or water either by a jury or by general meeting, as may be the adopted custom, and from the decision of the district tribunal there is no appeal.—Indeed, to demur is not often even safe. The dreadful tribunal of Judge Lynch is the one certain to be invoked by attempted resistance to the judgment of the local courts.

The claims are usually parceled in lots of 100 or 200 feet in length, up and down the gulch, and embracing its entire length. The local laws are scrupulously careful to prevent monopoly of water, and it is economized, if scarce, so as to afford the greatest advantage to all. Each owner, or owners, of a claim (they generally mine and cabin in couples) erects a flume, or digs a ditch, through which to wash the dirt of his claim from each side down to the depth of the bed-rock. Their labor consists of simply digging the earth loose and shoveling it into the ditch or flume, through which it is washed away, while a portion—usually about one half—of the gold is saved by various contrivances.—Sometimes the bottom of the flume is made of a thick plank, into which are bored a number of large auger holes, just deep enough not to go through. The "pay-dirt" is washed down over this perforated board, and a very large proportion of the gold will lodge in the holes—They will, of course, first fill up with sand, but the gold will find the least depression in the surface over which it is passing, and work down through the sand and earth to the bottom of the holes. At the foot of the sluice or flume a cross piece is usually placed, about an inch thick, to make a ripple, and sometimes they are placed at every ten or twenty feet, so that the earth passes over a succession of ripples. The ripples lodge a quantity of the earth, the gold sinks down in it to the bottom and there remains until there is a clean up. Sometimes small boxes are placed at the end of the ditch or flume, into which the water and earth empty, and while the earth washes out by the continuous current, the gold lodges safely in the bottom. In some instances a quantity of quicksilver is poured into the boxes to amalgamate the gold. The finest particle of gold, unless covered with iron, will amalgamate with the mercury at once, and cannot be separated from it until the mercury is strained out through buckskin. Copper plates, amalgamated with quicksilver, are also sometimes used in gulch mining, but not generally. The bottom of the flume is covered with copper, and the copper coated completely with quicksilver. The earth is then washed over it, and fine particles of gold will amalgamate on the plate.—When the general clean-up is made, usually once in one or two weeks, the various boxes, ripples, holes, &c., for catching the gold, are emptied and "panned out," by washing the earth and gravel away, and the pure gold will be found in the bottom of the pan.

The gulch miners work their claims very imperfectly. It is deemed a safe calculation that they leave quite as much in the earth as they extract, and more systematic men, with heavy capital, follow them, buy up the abandoned claims for miles together, and sometimes concentrate a whole gulch in one company. They often bring water for miles by flumes, and cut a bed-rock flume the whole length of their claims, through which they flow a strong stream of water. Into this they throw the whole earth of the gulch, and often bring down the whole hill-sides into the flume by hydraulic power. They save the gold, as the earth passes through the flume, on the same principles their predecessors did, only with much more system and completeness.—This secondary process of gulch mining is just now in its zenith in Montana, and this year it will yield millions of gold.

But the most important and permanent mining interest is the reduction of gold and silver quartz and the separation of the precious metals from the rock. I have seen this process from the mines to the retort, both in Colorado and Montana, and it is a study that must interest any observer. The gold and silver mines do not differ essentially from the general laws which govern mineral and coal leads in the States, and they are worked in the same manner. When opened properly, they are clearly defined as a rule, have fixed walls and regular pitches, and can be followed by experienced men with great certainty. In most of the mines pratical Cornishmen direct the development of the leads. Shafts are sunk, about six feet square, usually on the leads, the sides well timbered, and when a certain depth is attained—from 40 to 60 feet—a level is run both ways from the shafts, and all the ore above the level is "stoped out." Instead of working down from the top, the miners work up from the bottom. They run a "drift" from the bottom of the shaft out under the ore as far as may be expedient, make a floor of firm timbers, so as to protect them when they make their next level below, and then dig or blast the ore down overhead. They select the ore from the rock and earth as it falls down, wheel it out to the shaft for hoisting up, while the refuse drops under their feet, and keeps them up to their stope all the time.—When they have worked up as far as there is ore, they go down with their shaft 20 or 40 feet more, drift out again, timber as before, and then stope up to the floor of the first level, and so on indefinitely. The miners work day and night in "shifts," changing from day to night work every one ort wo weeks. There is no day in the mines—night is perpetual.—They work by the light of sperm candles, and for a candlestick they use a lump of soft kneaded clay, in which they imbed the lower end of the candle, and they shift it at pleasure by sticking the clay against a rock. Wherever it is placed it adheres, so that handling, changing, and using this light most advantageously involves no trouble. At first the ore is hoisted from shafts by a common windlass, but as a greater depth is attained horse power is attached to a "whim" for the purpose, and often steam engines are used. Foul air is always encountered more or less as shafts descend. As long as the miner's candle will burn brightly he can feel sure that the air is pure, but when it burns in a sickly manner or goes out, he is admonished of the necessity of pure air. The engine is then employed to force a current of fresh air through pipes to the bottom of the shaft, and the foul air is thus driven out. Water is sometimes very troublesome in shafts, and pumps have to be worked by steam to keep it out of the way of the miners. The better method of mining where the mines lie in hills is by tunnels, horizontal shafts run into the ground from the hill side until the lead is struck. The earth is run out on a little hand-car and dumped down at the mouth of the tunnel. When quartz is found the miners work up from the tunnel, as they stope out a level in the shaft, and car out only the valuable ore. Water cannot impede mining by tunnel, as it drains all the water to the mouth, and air chambers are also placed in the bottom of the tunnel, and sometimes above also, by which pure air can be preserved to a great depth. When the tunnel becomes too deep for supplying pure air from the mouth, an air shaft is worked up perpendicularly to the surface, a constant current of air is thus secured, and the tunnel can then be driven for hundreds of feet again. The miners not only dig the ore, but they select it carefully from the granite. An experienced miner will distinguish quartz as soon as he gets his hands on it, and needs no particular examination to determine its quality.—He is familiar with the peculiarities of the lead he is working, and can tell at once whether a rock is granite, or first or second class quartz. This requires considerable practical experience. I have seen gold quartz of every conceivable color and formation—white crystal, cold gray, all shades of blue, yellow and pink, and every shade of dark to jet black. Quartz is usually very rich when gold can be detected in it with the naked eye. Miners understand what particular formations carry the gold, and they seldom err in estimating its value In sulphurets the iron will glisten with a brilliancy that makes any inexperienced observer pronounce it gold; but the gold is infused in the iron in very fine particles, and seldom can be seen at all. Occasionally nugget gold will be found in quartz, but it is only in rare specimens of uncommon richness that the gold appears in that way. The average cost of mining ore in Colorado I would estimate at $5 per ton. In Montana it costs probably $8 per ton, but its development will be cheapened as it is systematized.

When the ore is mined, it is delivered to the mill either by wagons or railways, where it is broken about as fine as stone is usually broken on a good turnpike road. This is sometimes done by a machine called a "cracker," but usually by hand, with the common sledge. It is then ready for crushing, and the process in most general use is the stamp mill. A mill consists of from two to six "batteries," each battery having five stamps, which consist of heavy, round bars of iron, set perpendicularly, widening at the bottom, on which is fitted a steel shoe. Beneath the shoe is a steel die, firmly imbedded, on which the stamp drops. It is hoisted by each revolution of the machinery to a certain point, whirled partly around as it hoists, and its force consists simply in the drop of its weight upon the die. Each battery is surrounded with an iron frame or box, into which the ore is thrown, and a strong stream of water pours on it constantly.—On the outer side of the battery through a screen or sieve issues the water, and with it is carried the fine quarts as it is pulverised, so that feeding goes on constantly to supply the place of the fine quartz as it escapes. In the battery is placed a quantity of quicksilver, with which a large proportion of the gold amalgamates as the rock is crushed, and is held there until the "clean up." Many particles of the gold, however, escape with the fine quartz through the screen before it is brought in contact with the mercury, and, in order to catch it, the water and quarts from the latter are run over copper plates, from two to four feet wide, and ten to twenty in length, amalgamated with quicksilver. If the plate is properly coated, every particle of free gold will reach the bed of the plate in passing over it, and safely lodge in the mercury, but if the gold is impregnated with the base metals, it will not amalgamate with the mercury. It will pass over the plates and sink in the boxes or ripples (such as are used in gulch mining, and before described,) while the light earth and sand will wash away. These mixtures of gold with the base metals are called sulphurets, and they are worked successfully in Montana thus far by arastras or barrels. An arastra is simply a carefully laid bed of stone, about eight or ten feat in diameter, encircled with a woden rim; an upright shaft stands in the center, with two arms extending out, to each of which is attached a heavy rock with a smooth under face. It is so attached as to be raised a little in front, while the main weight of the rock drags on the stone floor. Into this bed, from 300 to 500 pounds or more of sulphurets are thrown, quicksilver added, and a stream of water turned on to it. A mule is hitched to the shaft on the floor above, and he drags the head stones around over the sulphurets until they are pulverised into almost impalpable powder, and then they are panned out just as prospectors pan earth in gulches, or sluiced off over amalgamated plates. Some stamp mills have metal pans in which their tailings or sulphurets are worked on the principle of the arastra, and other mills have wrought iron barrels about three feet in diameter and five feet long, in which are half a dozen or more large metal balls.—The sulphurets are put in the barrels, a bout 300 pounds to each, and the barrels run about twenty revolutions per minute The constant shifting of the tailings and rolling of the balls, rapidly reduces the base metals, and separate the gold, which amalgamates with the mercury mixed with it in the barrels. These different processes are usually run about twenty-four hours on a charge, and then they are sluiced off and panned out by the ordinary panning process. In Colorado, the gold is mainly found so mixed with the base metals as to defy reduction and amalgamation, hence the signal failure of mining operations there thus far, but this season will, I believe, thoroughly master their most refractory ores, and enable that rich territory to resume its former yield of millions annually. In Montana the ores have thus far been easily mastered. Another process for crushing the ores is the Chilian mill, consisting of heavy metal pans five feet in diameter, in which the heavy metal wheels revolve, weighing from one to two tons each. A current of water flows constantly into each pan, the main body of the gold is amalgamated with the mercury in the pans, and the fine quarts issues through screens over amalgamated plates just as in stamp mills.—This process of crushing is, I think, preferable to the stamp mill; will do more work with less power and tear of machinery, but it requires more care and skill in its use, and for that reason is not so acceptable. There are no other processes for crushing ores that have attained any measure of confidence, but there are innumerable patents for separating the gold after the ore is crushed. Silver ores are usually roasted before crushing, and gold ores, intermixed with silver, are also improved for reduction by roasting. Silver ores, containing 40 per cent. or more of lead, can be reduced readily by smelting, as the lead serves to flux the ore; but if less than 40 per cent. of lead is found in it, it cannot be smelted in this section so as to pay. Lead is worth from 30 to 70 cents per pound, and salt $10 per 100 pounds. The ingredients are too costly as yet for the reduction of any other than the Galena silver ores, excepting by the ordinary crushing and amalgamating process in use to produce free gold. In Colorado some of the refractory ores are smelted, and the gold, silver, copper, &c., all run out in bars together, and are then shipped to Swansea for separation, but I do not know the measure of success that has attended the effort. The Consolidated Gregory company of Colorado is working by this process, but has as yet paid no dividends.

After a run has been made in a quarts mill, usually from one to three weeks, they clean up. The batteries or pans are run down low, and then the mercury and remaining fine quarts scooped out for the process of panning. A small pan is filled with the quartz and quicksilver out of the battery, and whirled around in the water until the sand and earth are washed out, and nothing but the mercury (holding the gold) and heavy sulphurets remain. The quicksilver is then poured out from under the particles of ore and iron, a magnet is run through it to separate the particles of pure iron, and the residuu, which contains gold in iron, is pulverised in a hard morter, and what little gold can be saved is gathered in mercury. The amalgamated plates over which the pulverised ore has been passed are then carefully scraped with square pieces of rubber, and the gold (mixed with mercury) is added to the mercury from the batteries. The taillugs caught in the boxes and ripples are then emptied to be worked over in an arastra or barrels. The quicksilver gathered from the plates and batteries then contains all the gold saved by the iron, but the gold is in invisible particles in the mercury. The mercury is then strained out of the gold through buckskin, leaving so many ounces of "amalgam" as the clean up. The amalgam is worth from $5 to $7 per ounce, depending upon the fine or coarse quality of the gold—the gold that is coarsest in its particles being the most valuable, as the mercury can be better strained out of it.

The amalgam is about the consistency of thick meal mush, and nearly the same color—the gold giving the mereury a soft yellow color. It has yet to be retorted before it is pure gold. The amalgam is placed in a little iron box, much like a brick mold, full of fine needle holes. The box is so constructed as to allow the lid to be pressed down with clamps and screws until the amalgam is compressed in the smallest possible space. It is then put inside of another iron box, three times its size, and a lid fitted on it perfectly air-tight, by means of clay joints. In the top of the larger box there is a hole, probably an inch in diameter, to which is attached a pipe that comes down to the level of the bottom of the box at a distance of probably three feet. The box is then set in a small furnace, and the end of the pipe placed in a tub of water. A hot fire is made around the box until it is heated to a red heat, when the heat evaporates the quicksilver, in the inner box, out through the needle holes into the larger box, whence it escapes as vapor out through the pipe into the water, where it congeals and is found in the bottom of the tub pure quicksilver again. This heat is continued until all the quicksilver is evaporated from the gold, and congealed in the tub, when the box is taken out, cooled, opened, and in the little inner box will be found a little brick, probably half the size of an ordinary building brick, the fruits of mining, hauling, stamping, panning, &c., 20, 40, or, it may be, 100 tons of ore. The brick is assayed to ascertain its actual value, and is then ready for coining or manufacture into any of the thousands of articles for which it is used. In this patient, laborious manner, this country is now producing from seventy to one hundred millions of the precious metals annually, at as little profit just now, taken as a whole, as any other branch of industry can complain of, but ten years hence the yield should be nearly double, without a material increase of the gross cost of its production.—*Tribune.* A. K. M.

NEW YORK, Nov. 16.—Four distinct shocks of earthquake were felt in Elizabeth, N. J., last night, about quarter past ten o'clock. The four shocks continued some twenty seconds, and chairs, tables, beds and other articles of furniture swayed to and fro.